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# The Evolution of Welfare and Poverty Under Structural Change and Economic Recession in Côte d'Ivoire, 1985-88

Christiaan Grootaert

The need for poverty alleviation is greater than ever. The priority should be not so much to change distribution as to generate growth, although it is crucial to target basic needs services (education, health, tap water) to the very poor — especially in rural areas of the poor Savannah zone, but also in the West Forest.

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This paper — a product of the Poverty and Social Policy Division, Africa Technical Department — is part of the output of the research project "Poverty and the Social Dimensions of Structural Adjustment in Cote d'Ivoire, 1985-88: A Policy-Oriented Analysis" (RPO 675-26). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Elena Vitanov, room J2-241, extension 38400 (January 1993, 114 pages).

Grootaert demonstrates what can happen to the welfare of households and individuals, and to poverty, in a low- to middle-income country, under structural adjustment and recession. Côte d'Ivoire was one of the first African countries to launch a structural adjustment program with support from the World Bank and the IMF. The program was sustained for six years (1981-86), then abandoned in 1987-88 when a severe recession hit the country. A new economic recovery program was initiated in 1989.

Côte d'Ivoire presents a unique case study — certainly in Africa — because four consecutive years of comprehensive data on levels of living are available, for the period 1985-88, from the Côte d'Ivoire Living Standards Survey (CILSS). The first two years of data capture the situation at the end of a sustained adjustment effort, when the economy was growing moderately; the last two years capture a period of pronounced macroeconomic decline and destabilization.

Grootaert found that in the first period, the incidence of poverty remained steady and the welfare level of the poor actually rose. In 1987, on the other hand, poverty and extreme poverty both became more widespread — a trend that accelerated dramatically in 1988, when the incidence of poverty rose from 35 percent to 46 percent.

Over 1985-88, the regional and socioeconomic patterns of poverty changed markedly. The most important shift was the rapid increase in urban poverty. Especially households of public sector employees and those working in the informal sector were hardest hit. Farmers appear to have benefitted during the final years of the adjustment phase, while poverty incidence among them increased sharply in 1987-88, especially among export crop farmers. This occurred in spite of continued maintenance of producer prices, suggesting that price support alone is not sufficient to protect farm incomes. The entire system of agricultural support must be maintained and improved.

Grootaert found that basic needs fulfillment did not decline as much as expenditure. But the burden of whatever declines did occur fell disproportionately on the very poor. The targeted provision of public services (health, education, tap water, and so on) is thus a high priority.



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**Poverty and Social Policy Division**
**Technical Department**
**Africa Region**
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# THE EVOLUTION OF WELFARE AND POVERTY DURING STRUCTURAL CHANGE AND ECONOMIC RECESSION — THE CASE OF COTE D'IVOIRE, 1985-88

**Christiaan Grootaert**

This paper is an output of the research project "Poverty and the Social Dimensions of Structural Adjustment in Côte d'Ivoire, 1985-88 - A Policy-Oriented Analysis" (RPO 675-26). Special thanks are due to Lionel Demery and Ravi Kanbur for their input in this paper and the project at large. I am grateful to Philippe Callier, Jean-Luc Dubois, Michel Noël, Ismaïl Serageldin and Roger Sullivan for helpful comments on earlier drafts. Computer programming and general analytic assistance were very competently provided by Gi-Taik Oh and Meera Venkataraman. My thanks also go to Audrey Cox, Li Ting Fong and Elena Vitanov who processed this paper.

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## 1. Introduction

Since the start of structural adjustment programs in the 1980s, a growing debate has emerged as to the efficiency of these programs to bring about sustainable economic growth and as to their short and long-term impact on poverty and basic needs fulfillment. By now, a fair amount of evidence has been accumulated to show that "adjusting" countries have experienced more improvement (or less decline) in their macro-economic performance than "non-adjusting" countries (see Corbo et al., 1992 for a recent review). However, it is now recognized that progress has been much slower than anticipated originally and that structural adjustment and associated policy change is a long-term endeavor in most countries.

It is much less clear what the impact of the adjustment process has been on the poor and on the social sectors in general. Initial claims of a strong negative impact (Cornia et al., 1987) were based on insufficient empirical evidence and a too limited conceptual approach, which failed to distinguish between the effects of economic recession and those of adjustment which itself was a policy response to the recession and its concomitant internal and external imbalances. Recent work (World Bank, 1990; Demery, Ferroni and Grootaert, forthcoming) has provided a more refined framework to describe the transmission mechanism between macro-economic events and the micro-economy of households and individuals. This work has emphasized the role of labor and commodity markets and of economic and social infrastructure, and described in some detail the relevant factors in the transmission process in the case of the social sectors (education, health) and in the case of important target groups (women, rural smallholders, the poor).

This target group and sector-specific approach has focused on identifying key variables that need to be considered in an empirical analysis of the macro-micro transmission and on setting out suitable analytical approaches which can provide guidance to policy. One reason for this angle of inquiry was the emerging conclusion from the work that in most

situations the poverty and social impacts of adjustment cannot be predicted on purely theoretical and a priori grounds — not even qualitatively. The reasons are (at least) twofold. First, a typical adjustment package consists of many different macro-economic and sectoral measures. These measures do not necessarily have converging impacts. Second, the impact of a given single policy action is usually difficult to predict, even when considered in isolation. For example, how a nominal exchange rate devaluation will impact the poor depends upon the consumption and income patterns of the poor, the composition of imports and exports, associated tariffs and subsidies, etc. Moreover, the impact of a given measure can depend upon which other components are in the package. In the same example, the impact of devaluation will depend on what simultaneous actions are taken to liberalize trade and abolish government marketing monopolies. 1/

What all this means is that the determination of what happens to household welfare, poverty, and the fulfillment of basic needs under conditions of structural change is largely an empirical matter. And this presents a serious problem, because in many developing countries, especially in Africa, the needed social and economic data base is non-existent or out-of-date. It is therefore potentially very instructive to undertake detailed case studies in those rare countries where the needed data do exist. One such case is Côte d'Ivoire over the period 1985-88. To our knowledge, this case is unique in Africa, because the available data meet three essential conditions. First, any analysis of the impact of macro-economic change requires comparable data for at least two points in time. Second, the available data must be situated at appropriate time points relative to the adjustment phase, so that they can reflect its impact. Third, the concern with household welfare and poverty requires micro-level data which cover the different dimensions of household welfare.

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1/ There are of course exceptions. The impact of laying off government workers on the welfare of their households is rather straightforward — at least in the short run. Similarly, cutting food subsidies will directly and immediately hurt consumers of the subsidized item. The challenge remains though to identify medium-term responses.

In Côte d'Ivoire, such data were collected for four consecutive years, 1985-88, in the Côte d'Ivoire Living Standards Survey (CILSS). This survey asked detailed information on income, expenditure, employment, health, education, housing and other relevant socio-economic characteristics of households and individuals. Moreover, the period 1985-88 represents a particularly critical phase in Côte d'Ivoire's process of structural change. Adjustment efforts in Côte d'Ivoire started in 1981, and were sustained for six years. After showing signs of improvement in 1985-86, the economy nosedived in 1987-88 and the government abandoned the structural adjustment program (it was resumed in late 1989). The initial years of CILSS data (1985-86) are thus able to pick up the effects of sustained adjustment, while the latter years (1987-88) will reflect the abandon of the effort and rapid economic decline — in effect, a period of destabilization. This feature is particularly important, because it provides a "natural" way to disentangle adjustment from recession effects 2/.

Our objective in this paper is to chart the evolution of household welfare, poverty, and the fulfillment of basic needs in Côte d'Ivoire between 1985-88 and to try to understand this evolution in the context of the macro-economic change which occurred over the period. We are concerned to find out how the overall incidence and depth of poverty has evolved, and what changes may have occurred in the regional and socio-economic patterns of poverty. It stands to reason that the macro-economic swings will have benefitted some groups and hurt others, and it is clearly of interest for policy to know who they are. It is to be expected that the economic decline in 1987-88 will have had a negative impact on household welfare, but the question is by how much and where the impact was concentrated.

In trying to address these questions, we elected to use a flexible methodology which allowed the story of what happened to welfare and poverty to come out of the data themselves as much as possible, without imposing a formal model structure. Given how

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2/ Obviously, this is a simplification. Even after the abandon of the adjustment program, some effects will continue to be felt. Likewise, the subsequent economic decline will also take time before it shows up in poverty and basic needs measures.

large and rich the CILSS data sets are, this is actually in itself somewhat of a challenge, and would seem to be a useful approach to a policy-oriented empirical analysis of poverty. Our methodology is centered around the construction of a policy relevant poverty profile which includes the income/expenditure dimension as well as the basic needs aspects of welfare. Decomposition of poverty indexes along regional and socio-economic lines will be used to try to relate specific policy measures to the welfare of sub-groups of the population. An analysis of income and expenditure patterns will form the basis of an assessment of the impact of commodity-specific measures.

As we hope the paper will demonstrate, this approach can provide policy-makers with much relevant information for the assessment of past policies and for the design of new ones, in the area of poverty and basic needs. It will be clear though, and must be explicitly stated from the outset, that our approach will not permit to prove causality in a formal way, neither between macro-economic policies and macro-economic performance, nor between the latter and changes at the micro-level. Strictly speaking, only a general equilibrium model of the economy, suitably disaggregated, would be capable of doing so. And while such model could be one of several useful areas of follow-up research, we did not think it was the most fruitful starting point. (In fact, the design itself of such a model requires a good prior understanding of the factual patterns of changes in the economy, both at macro- and micro-levels).

The CILSS data have been the subject of earlier analysis related to welfare and poverty, but most studies used only the 1985-86 data. A recent selection includes Deaton (1987, 1989), Glewwe (1987, 1989), Grootaert (1987, 1990), Vandergaag and Vijverberg (1989), Kakwani (1990) and Kanbur (1990). To our knowledge, this paper presents the first set of poverty and welfare indicators covering the entire four year period. As the results will show, the use of the fourth year of data (1988) proves to be particularly important to interpret properly the impact of macro-economic change on households.

Moreover, this study improves on previous work in two ways. First, we developed a new regional cost-of-living index with a much more comprehensive coverage than earlier indices. The use of this index to deflate the welfare measure makes a significant difference in the estimation of poverty. Second, as part of the research underlying this paper, we have examined in detail the sampling procedures and properties of the Côte d'Ivoire Living Standards Survey. We discovered the existence of several errors in the data due to sampling bias, and developed appropriate corrective weights to be applied to the data. Again, this correction makes a significant difference for the estimation of the level and trend of poverty.

While the main purpose of the paper is to present empirical evidence of changes in welfare and poverty in Côte d'Ivoire, we do aim to go beyond the specifics of the case study and to derive some lessons with general relevance and applicability to other countries as well. We shall also try to assess the general usefulness of our methodology as a tool to analyze poverty. Lastly, the experience gained during the analysis of the data will permit to draw specific conclusions regarding the optimal type of data collection for policy-oriented analysis of poverty, in terms of frequency of surveys, sample size and design, and survey content.

The outline of the paper is as follows. In the next section, we briefly review the data sets underlying the case study. Section 3 presents our methodology of poverty analysis, centered around the construction of a policy-relevant poverty profile and the use of a decomposable poverty index. In section 4 we sketch the macro-economic evolution in Côte d'Ivoire in the 1980s and the main lines of the adjustment program. The presentation of case study results begins in section 5 with findings on household expenditure and the incidence and depth of poverty. Section 6 addresses the basic needs dimensions: education, health and housing. The final section summarizes the empirical findings, draws policy implications for Côte d'Ivoire, and extracts lessons which are relevant for other countries as well.

## 2. The Côte d'Ivoire Living Standards Survey (CILSS)

The main data set for this case study is the Côte d'Ivoire Living Standards Survey (CILSS). The CILSS was conducted from 1985 to 1988 by the Direction de la Statistique, with financial and technical support from the World Bank during the first two years. The sample size each year was 1,600 households and the sample design was a rotating panel, i.e. 50 percent of the households were re-visited the following year and the other half was replaced by new households. The survey thus yielded a sequence of four cross-sectional data sets, each of which is representative of the country as a whole, as well as three overlapping panels of approximately 800 households each (1985-86, 1986-87, 1987-88). The survey collected detailed information on employment, income, expenditures, assets, basic needs and other socio-economic characteristics of the households. Over the four years, coverage and methodology of the data collection were held constant so that results are comparable over time (see Grootaert, 1986, for a further discussions of the content and methodology of the CILSS).

As part of the research underlying this paper we undertook a detailed review of the sampling procedures and properties of the CILSS. We found that even though the survey sample had been designed to be self-weighting, in practice various errors occurred in the constitution of the sample, which require the application of ex-post weights to the data. These errors were brought to light by the observation of several anomalies in the survey results.

First, it was noted early on that household expenditures appeared to be overestimated in Abidjan in 1985 and 1986. This could be traced to an incorrect selection of primary sampling units (PSUs) leading to an over-representation of rich areas. To the extent possible, this was corrected through the construction of ex-post weights for Abidjan. The majority of the studies which used data from the early CILSS years have applied those weights (see citations in section 1).

Second, average household size as calculated from the survey declined from about eight to six persons between 1985 and 1988. Demery and Grootaert (1992) have investigated this phenomenon in detail and concluded that it did not correspond to a demographic reality. The culprit was found to be a flawed field procedure in listing the households from which the 1985 and 1986 samples were drawn. There was a bias towards listing larger dwellings, and thus larger households. This bias in the listing was of course reflected in the final sample of the survey. The listing procedures were revised in 1987, and a comparison with 1988 Population Census results indicated that the household size derived from the 1987-88 CILSS closely matches census figures. Consequently, the distribution of household size for the 1985 and 1986 samples (and the 1987 panel component derived from the early sample list) was re-weighted to eliminate this sampling bias. As Demery and Grootaert have shown, the sampling bias in the 1985-86 data corresponds to an overestimation of poverty in the order of 10-15 percent at the national level, and as much as 20-30 percent for some regions and socio-economic groups. The proper correction is thus not a matter of trivial importance, but has serious implications for policy. Unlike the first set of weights (for Abidjan), this correction for household size has not been applied by other researchers. Given the magnitude of the correction, several of the results reported in earlier work may well prove not to be robust to this correction for sampling bias.

Third, the share of rural households in the CILSS dropped suddenly between 1986 and 1987, from 57 to 50 percent. Results from the 1988 Population Census indicated that this drop did not correspond to reality. It stemmed from an update of the sampling frame which occurred in 1987, and which was based on results from an electoral census (Daho, 1992). The latter proved to have incorrect coverage of households, so that an excessive number of urban PSUs were selected for the sample. With the benefit of hindsight, i.e. the 1988 Population Census results, it became clear that the updated set of PSUs was actually further from reality than the 1985-86 set. Consequently we re-weighted the 1987 and 1988

regional distribution of households so that it would match census figures.3/ This re-weighting is particularly important for over-time comparisons of welfare and poverty, in view of the wide urban-rural welfare differential in Côte d'Ivoire. If one were not to apply these weights, the sudden drop in the percentage of rural households in the sample in 1987 would produce a false drop in the estimated incidence of poverty (given that poverty is much higher in rural than in urban areas).

The three corrective factors discussed above were combined in one series of household weights to be applied to the data in order to eliminate the three identified sources of sampling bias. The series was normalized to keep degrees of freedom in the data constant.4/ All tables in this paper are based on survey results to which the series of corrective sampling weights have been applied.

## 3. The Measurement of Welfare and Poverty 5/

### 3.1 The Welfare Index

Household welfare or level of living 6/ is fundamentally a multi-dimensional concept, comprehending every aspect of direct consumption of goods and services as well

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3/ This re-weighing affected only the distribution of the sample across strata, i.e. regions. In contrast, the revision of the listing procedures in 1987 - which were a great improvement over the early procedures - affected only the second stage of the sampling, i.e. the listing and selection of households within PSUs and strata. This explains why the estimates of household size within each region were correct in 1987-88.

4/ Oh and Venkataraman (1992) contains a more detailed discussion of the mechanics of the construction of these weights, as well as further general information on the CILSS data files underlying this research.

5/ The discussion in this section partly follows that of Grootaert and Kanbur (1990).

6/ We use the terms "welfare" and "level of living" interchangeably. The name of the CILSS notwithstanding, we prefer not to use the term "standard of living" because it is sometimes used in a normative sense.

as non-consumption activities and services (see Grootaert, 1983, and Sen, 1987). The former is the result of direct market purchases as well as consumption of goods and services produced by the household itself. The latter includes the use of services often provided by the State such as health, education and access to clean water, which contribute directly and indirectly to the level of living of the household. Because the value of these services is not easy to quantify, we keep separate in the analysis below the direct consumption components of household welfare from the so-called basic needs aspects. 7/

The basic problem is then to quantify the complete pattern of direct consumption into a single indicator of welfare. The standard economic solution is of course to convert the quantities consumed into a total figure by valuing them with prices — market prices in the case of actual purchases, imputed prices in the case of consumption out of home production or income received in kind. In the case of the CILSS, the task of imputing prices has been made easy because for all non-purchased items, households were asked to estimate the equivalent market value. 8/

The measure of household welfare used in the analysis below is thus household expenditure. 9/ This is a preferred measure over household income for conceptual and pragmatic reasons. Conceptually, household expenditure can be seen as a proxy for

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7/ The satisfaction of many basic needs enters both the direct and indirect consumption of the household. For example, even if the State provides health services, the household will usually still have outlays on health services, either because they are not entirely provided for free by the State, or because they are purchased from a private provider. Only in rare cases will the total direct outlays correspond to the total consumption of the household of health services - hence the need to review the satisfaction of basic needs over and above the fraction that is captured by the measure of direct consumption.

8/ It is recognized that this may introduce an element of subjectivity. On the other hand, households may well be better able to assess what something is worth in the market which is part of their daily environment, than an outside analyst who tries to impute prices "objectively" from an estimated model of that market.

9/ Johnson et al. (1990) describe how total household expenditure was constructed from the CILSS data.

permanent income or consumption, which is the ideal measure because it incorporates over-time decisions by the household (i.e., substitution between current and future consumption through savings). Unfortunately, the estimation of this requires longitudinal data on household consumption over several years. The two-year panels of the CILSS go a small way towards estimating this, but the attempt to use this feature of the data has been relegated to a separate paper (Grootaert and Kanbur, 1992b). In a developing country setting, current expenditure is likely to represent permanent income better than current income, because it tends to be less subject to short-term fluctuations. Also, experience with data collection has provided a strong indication that expenditure tends to be recorded more accurately than income. This is especially the case in settings where non-market income is important.

The proper use of household expenditure as a measure of welfare requires in principle that the size and composition of the household be taken into account, because consumption needs will depend on the number of household members and may vary with age and sex. Household size can be taken into account by expressing expenditure on a per capita basis. The consideration of household composition requires the use of an adult equivalent scale. The construction of such a scale in an endogenous fashion, i.e. derived from the data itself, is a complex exercise fraught with conceptual and practical difficulties and there is no agreement in the literature on the best procedures (see e.g. Deaton and Muellbauer, 1980). The calculation of such a scale has not been attempted for this paper. Some analysts use an exogenously derived scale, frequently from another country. E.g. Glewwe (1987) uses an equivalent scale based on Sri Lanka and Indonesia data in his analysis of the CILSS data. We deem the assumption that equivalent scales are valid across countries as non-proven and intrinsically very questionable, and that hence the use of such scales does not constitute an obvious improvement over simple per capita measures.

### 3.2 Prices

Different households in a country may face different prices because they operate in different markets. To the extent that it is practically possible, such differences should be

taken into account when using household expenditure as a welfare measure, by deflating it with a cost-of-living index. Previous research on the CILSS data has been largely unsuccessful in doing so. The most complete index was developed by Glewwe (1987) and has been used by other researchers as well (Kanbur, 1990). Glewwe's index however includes only one non-food item — a can of tomato paste. It is difficult to argue that this item, which constitutes about 1 percent of an average Ivorian household's non-food budget, can adequately represent the entire non-food basket.

We have therefore drawn on a richer data base, namely the prices collected in Côte d'Ivoire in 1985 under the auspices of the International Comparisons Project (ICP). Such prices have been used to calculate exchange rates between different countries based on purchasing power parity (see Kravis et al, 1982; Eurostat, 1989). However, our use of the data for the purpose of welfare comparisons within the country constitutes a novel use of ICP data. We calculated a Paasche regional cost-of-living index (basis = Abidjan) by matching prices of 260 product categories in ICP data with expenditure shares for 27 food categories and 25 non-food categories derived from the CILSS (the details of this work are described in Grootaert and Kanbur, 1992a). The resulting index (Table 1) shows that Abidjan is the highest-cost region in Côte d'Ivoire. Cost of living in other urban areas is about 8 percent lower, and in rural areas 13 to 25 percent lower. A comparison of this with Glewwe's index reveals that the latter underestimates cost-of-living differences in rural areas but overestimates price differences between Abidjan and other cities.

Since ICP price data are only available for 1985, we had to assume that regional price differences remained steady for the other years. We did, however, update the expenditure shares for each year and recalculated the cost-of-living index accordingly. The resulting index is quite stable except in West Forest and Savannah. For West Forest the cost-of-living differential increases from about 22 to 28 percent, while in Savannah it decreases from 24 to 18 percent. The two regions trade place in terms of the greatest cost-of-living difference relative to Abidjan. This is consistent with the fact that West Forest

**Table 1: Regional Cost-of-Living Index, 1985-88**

| | 1985 | 1986 | 1987 | 1988 |
|---|---|---|---|---|
| Abidjan | 100.00 | 100.00 | 100.00 | 100.00 |
| Other Cities | 92.84 | 93.62 | 91.49 | 92.57 |
| East Forest | 87.01 | 87.01 | 88.12 | 86.58 |
| West Forest | 78.25 | 74.66 | 75.64 | 72.42 |
| Savannah | 75.97 | 80.12 | 81.86 | 81.88 |

is the region that saw the most severe erosion of welfare: between 1985 and 1988 real household expenditure per capita fell by 41 percent. This is likely to have depressed prices. In Savannah real household expenditure also declined, but less than the national average (see Section 5).

Since our analysis involves welfare comparisons over time, it is also necessary to incorporate general price increases over time. This was done on the basis of the Consumer Price Index (Table 2), which was uniformly applied to the regional cost-of-living index. In other words, we assumed (again) that regional cost-of-living differences remained constant over the four year period.

**Table 2: CPI 1985-88**

| | 1985 | 1986 | 1987 | 1988 |
|---|---|---|---|---|
| CPI | 100.00 | 107.30 | 107.75 | 115.31 |

**Source:** IMF, International Financial Statistics

## 3.3 Poverty Line and Poverty Index

After having constructed the welfare index and a suitable cost-of-living deflator, it is necessary to distinguish the poor from the non-poor, i.e. to set a poverty line. This paper is not the place to review the large literature on this topic (see e.g. Sen, 1987; Kanbur, 1987; Ravallion, 1992), but it suffices to say that it constitutes a controversial area in poverty analysis. The two main alternative approaches involve the calculation of a relative or absolute poverty line. The latter is frequently based on minimum nutritional intake requirements which are "translated" into minimally needed food expenses, and to which is then added a non-food basket deemed to constitute an essential minimum. Apart from the queries raised in the literature about the feasibility of both establishing nutritional minima and converting them into food expenses (see e.g. Srinivasan, 1981; Sen, 1987), there is a fundamental arbitrariness in setting the non-food minimum. This would clearly be influenced by and be relative to social, cultural, political and other norms. We make this point not so much as a criticism of the approach, but to emphasize that an absolute poverty line does have an arbitrary and relative element in it.

The relative poverty line is determined entirely within the expenditure data to which it is to be applied. The approach consists of setting a poverty line which cuts off an — arbitrarily — preselected percent of the population on the expenditure distribution. An alternative procedure is to set the poverty line at an — equally arbitrarily — preselected fraction of mean expenditure (Boateng et al., n.d., use this method in a poverty study on Ghana).

Regardless of the approach chosen, it is important to recognize that the poverty line is a largely arbitrary divider between poor and non-poor. It will thus be important to undertake sensitivity analysis to ensure that poverty incidence and patterns are not unduly changed as a result of small sh. of the line. Also, in practice, it will be important to have support from policy makers for the chosen line if the poverty analysis is to be policy relevant.

For this study we have opted to define two poverty lines, using a relative approach. The first poverty line — 128,600 CFAF per year — was chosen so as to cut off 30 percent of individuals ranked by household expenditure per capita in 1985. The second line — 75,000 CFAF per year — was chosen to identify people in extreme poverty, as it cuts off the bottom 10 percent of the distribution. 10/ These lines correspond to about one half and one third of mean per capita household expenditure, respectively. Our analysis will include a sensitivity analysis around those lines (section 5.4) as well as dominance tests (section 5.5). For the analysis of the evolution of poverty over time, the two poverty lines were held constant in real terms. So, even though the lines were initially selected in a relative way, the analysis over time follows an absolute approach (under a purely relative approach the incidence of poverty does not diminish over time, by definition).

Our last choice remains that of a poverty index, which must summarize information on the incidence and depth of poverty. In line with much other recent work (Boateng et al., n.d.; Kakwani, 1990; Kanbur, 1990; Ravallion, 1992) and the approach suggested in Grootaert and Kanbur (1990), we have selected the so-called P-alpha class of poverty measures developed by Foster, Greer and Thorbecke (1984).11/ The general formula is

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^\alpha$$

where $n$ = number of people
$q$ = number of poor people
$z$ = poverty line
$y_i$ = expenditure per capita of individual i
$\alpha$ = poverty aversion parameter

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10/ Sometimes the minimum wage is suggested as the poverty line. This is not suitable in Côte d'Ivoire, because the guaranteed hourly industrial wage (SMIG) was set at 191.40 CFAF over the period 1985-88, which adds up to an individual income of 306,240 CFAF per year (on the basis of 1,600 work hours). This is almost 50 percent above mean expenditures per capita in 1985.

11/ For a review of poverty measures, see Foster (1984) and Atkinson (1987).

The poverty aversion parameter can take any positive value or zero. The higher the value the more the index "weighs" the situation of the very poor, i.e., the people farthest below the poverty line. Of specific interest are the cases where $\alpha = 0$ and $\alpha = 1$.

If $\alpha = 0$, the index becomes

$$P_0 = \frac{q}{n}$$

which is the simple head count ratio of poverty, i.e. the number of poor people as a percentage of the total population. While this is a useful first indicator, it fails to pay attention to the severity or the depth of poverty. To do so, one also needs to look at the extent to which the expenditures of poor people fall below the poverty line. This is customarily expressed as the "income gap ratio" which expresses the average shortfall as a fraction of the poverty line itself, i.e.,

$$\frac{z-\bar{y}_i}{z}$$

where $\bar{y}_i$ is the average income or expenditure of the poor.

A useful index is obtained when the head count ratio of poverty is multiplied with the income gap ratio. This corresponds to

$$P_1 = \frac{q}{n}\left(\frac{z-\bar{y}_i}{z}\right)$$

which reflects both the incidence and depth of poverty. This measure has a particularly useful interpretation because it indicates what fraction of the poverty line would have to be

contributed by every individual to eradicate poverty through transfers, under the assumption of perfect targeting. Since this assumption is not likely to apply in practice, this can be considered as the minimum amount of resources needed to eradicate poverty. In the tables below in section 5, we shall show $P_0$, $P_1$ and $P_2$. Since the latter measure is more sensitive to the situation of the poorest, the comparison with $P_1$ can show whether the distribution among the poor has worsened or improved.

The P-alpha poverty measure has the further advantage of being decomposable. For example, the measure at the national level can be expressed as the sum of regional measures weighted by the population share of each region:

$$P_\alpha = \sum_{j=1}^{m} k_j \, P_{\alpha_j}$$

where $j = 1,\ldots, m$ regions

$k_j =$ population share of region j

This makes it possible to calculate the "contribution" $c_j$ of each region to national poverty:

$$c_j = \frac{k_j P_{\alpha_j}}{P_\alpha}$$

This feature is very helpful to make poverty analysis directly relevant for policy. Decompositions along policy relevant dimensions such as region and socio-economic group can indicate how macro-economic events have changed poverty in the country through their effects on specific regions or groups. Knowledge about the share of each region or group in total poverty is essential for targeting interventions. Therefore, parallel to the presentation

of the $P_\alpha$ measure for $\alpha = 0,1$ and 2, the tables below will also show the decomposition of the measure.

## 4. Côte d'Ivoire's Macro-Economic Evolution in the 1980s

Côte d'Ivoire's extraordinary growth record during its first 2 decades of independence is well documented (Den Tuinder, 1978). The "Ivorian miracle" came to an abrupt halt in 1980 as a result of the collapse of world prices for coffee and cocoa — the country's two main exports. In 1982-84 a severe drought further ransacked the economy, so that real GDP per capita fell by almost one fifth over the period 1980-84. Excellent harvests and a rise in world prices for coffee and cocoa provided an upturn in 1985 and 1986, but it proved to be short-lived and in 1986 it was already insufficient to outpace population growth (Table 3).

In 1987, the recession resumed in full force. This was triggered by a sudden and sharp appreciation of the real effective exchange rate, which in 1986 and 1987 rose by 33%. This was the result of the significant depreciation of the dollar against the French Franc (against which the CFAF is convertible at a fixed parity of 1 FF = 50 CFAF), in combination with domestic wage rigidity. Moreover, the terms of trade turned severely against Côte d'Ivoire in 1987. Coffee and cocoa production and exports fell significantly, resulting in a sharp decline in Côte d'Ivoire's traditional trade balance surplus. The situation also affected negatively the industrial sector of the Ivorian economy. The outcome of all this was to turn the 1985 current account surplus into a deficit, which in 1988 equalled 10 percent of GDP. The recession also reduced government receipts and, since government expenditures were not cut, the government budget deficit rose to 15 percent of GDP in 1988. All agents in the economy suffered from the recession, but households were particularly hard hit. According to the national accounts, aggregate consumption on a per capita basis fell by about 10 percent in 1987 and by another 20 percent in 1988. It stands to reason that a major downward trend occurred in levels of living in Côte d'Ivoire over the period 1985-88.

## Table 3: Côte d'Ivoire Macro-Economic Indicators 1985-90

| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|
| GDP (bln CFAF) | 3137 | 3244 | 3118 | 3067 | 2948 | 2705 |
| Population (mln) | 9.4 | 9.7 | 10.1 | 10.5 | 10.8 | 11.2 |
| GDP per capita ('000 CFAF) | 334 | 334 | 309 | 292 | 273 | 242 |
| **Real Growth Rates** | | | | | | |
| GDP | 4.9% | 3.4% | -1.6% | -2.0% | -1.5% | -2.9% |
| Private Consumption | 4.1% | 13.1% | -7.1% | -16.6% | -0.1% | -10.1% |
| **Trade** | | | | | | |
| Terms of trade (index) | 100.0 | 100.7 | 82.4 | 73.9 | 63.8 | 59.3 |
| Average Exchange Rate (CFAF per $) | 449.3 | 346.3 | 300.5 | 297.8 | 319.0 | 272.3 |
| Real Effective Exchange Rate (index) | 100 | 120 | 133 | 135 | 128 | 130 |
| **Agriculture** | | | | | | |
| Cocoa production ('000 tons) | 528 | 627 | 544 | 715 | 782 | 780 |
| Coffee production ('000 tons) | 277 | 260 | 254 | 184 | 239 | 284 |
| Official cocoa price (CFAF/kg) | 375 | 400 | 400 | 400 | 200 | 200 |
| Official coffee price (CFAF/kg) | 190 | 200 | 200 | 200 | 200 | 100 |
| Food crops production 1/ ('000 tons) | 5832 | 5592 | 5791 | 6012 | 5792 | 6289 |
| **Public Finance** | | | | | | |
| Gov't receipts (bln CFAF) | 1110 | 978 | 794 | 789 | 680 | 639 |
| Gov't expenditure (bln CFAF) | 1026 | 1058 | 1051 | 1236 | 1197 | 980 |
| Surplus/deficit (bln CFAF) | 84 | -80 | -257 | -447 | -517 | -341 |
| (as % of GDP) | (2.7) | (2.5) | (8.2) | (14.6) | (17.5) | (12.6) |
| **Balance of Payments** | | | | | | |
| Trade Balance (bln CFAF) | 597.6 | 523.0 | 372.6 | 298.6 | 284.1 | 374.8 |
| Current Account (bln CFAF) | 21.1 | -120.1 | -238.4 | -301.6 | -307.4 | -283.9 |
| (as % of GDP) | (0.7) | (3.7) | (7.6) | (9.8) | (10.4) | (10.5) |
| Capital Account (bln CFAF) | -108.4 | 21.8 | -31.7 | -151.9 | -111.5 | -123.0 |
| Overall Balance (bln CFAF) | -87.3 | -98.3 | -270.1 | -453.5 | -418.9 | -406.9 |
| Debt Service Ratio | 17.4% | 23.3% | 19.6% | 13.0% | 40.9% | 38.6% |

Sources: IMF and World Bank Statistics,
Côte d'Ivoire, Ministère de l'Economie et des Finances
The Economist (1990)

1/ Food crops include yams, plantains, cassava, rice (paddy), maize, millet and sorghum.

## The Structural Adjustment Program

The Ivorian Government has reacted varyingly to the economic deterioration in the 1980s. In 1981, Côte d'Ivoire became one of the first African countries to launch a structural adjustment program. This marked the beginning of a first phase (1981-87) which attempted to restore fundamental macro-economic balances, and to correct major distortions in the incentive system. This phase was supported by three World Bank structural adjustment loans (SAL) in 1981, 1983 and 1986 — for a total of US$650 million (see Grootaert and Kanbur, 1990 for a detailed discussion of Côte d'Ivoire's adjustment program). Over the same period, the IMF concluded one extended and four stand-by arrangements with Côte d'Ivoire, for the equivalent of 827 million SDR (Table 4). In spite of these programs, economic conditions in Côte d'Ivoire continued to deteriorate and this led eventually to an interruption of the adjustment effort — and of the support by the World Bank and the IMF — between 1987 and 1989. Towards the end of 1989, the Government put in place a new economic reform program supported by the Bank and the Fund. In this new phase, the strategy had shifted toward a sectoral approach in providing the proper incentives for sustainable growth. Since 1989, six sectoral adjustment operations have been launched, covering agriculture, energy, water supply, the financial sector, competitiveness and human resources (Table 4). In June 1991, Côte d'Ivoire became eligible again for IDA terms as a result of the continuous decline in GDP per capita, and some of the sectoral operations were partly funded through IDA. In July 1991, the Bank temporarily suspended disbursements in view of overdue payments, but the situation has since been normalized.

### SAL II and III

For the purposes of this paper, we need to take a closer look at SAL II and III, covering the 1983-87 period. A first ingredient of SAL II was the (continued) reform of the parastatal and public sectors. The reforms consisted of the rationalization of investment policy, the improvement of the structure of current expenditures and the rehabilitation of the parastatal sector. However, the most immediate impact on household welfare came from the

government's decision in 1984 to align parastatal wages with those in the regular civil service. This meant a significant wage-cut for parastatal employees. Civil service wages were also frozen, and remained so until January 1986. They rose only slightly in the subsequent years.

Agriculture price and subsidy policy under the structural adjustment program had a potentially significant impact on farmers and on poverty incidence among them. First, coffee and cocoa producer prices were raised for the 1983-84 season and kept constant until 1989 (when they were cut by 50%). Second, a series of subsidies on domestic sales of export crops were removed. Third, the prices of cotton fertilizer and cotton were increased simultaneously, and the expansion program for cotton production started under SAL I was continued. Fourth, programs to promote food crop production, also started under SAL I, were maintained.

The government also revised its industrial policy in an attempt to reform the incentives regime. Non-tariff barriers were removed and replaced with a tariff system aimed at establishing a 40 percent effective protection rate. An export subsidy mechanism was introduced geared to providing the same effective assistance to exports as to import substitutes. In essence, these measures attempted to mimic a real devaluation, since a nominal devaluation was not possible in view of the fixed parity between the CFAF and the French franc.

A major, and new, component of SAL II was housing policy. The government decided to get out of the provision of public housing and to abolish the two agencies responsible for it (SOGEFIHA and SICOGI). Rents on public housing units were increased in 1985 and eventually the units were sold to tenants at below market values. Housing subsidies to civil servants were also reduced.

In SAL III, several agricultural measures were proposed with potentially important impact on farmers' income: (i) progressive increases in real producer prices for coffee and

cocoa; (ii) a series of tariffs and export subsidies to achieve a minimum effective protection level of 30 percent for most other export crops; (iii) progressive re-alignment of traded food crops such as rice and wheat flour with international prices, but in a way to ensure that there would be no "excessive repercussions" on consumers; (iv) various programs to promote selected export as well as food crops and to improve their quality. In the event, many of these measures were not implemented in view of the abandon in 1987 of the adjustment program. Most noteworthy is that producer prices for coffee and cocoa were never increased, but instead cut by 50 percent in 1989 — because of fiscal necessity. Also, the consumer price of rice was not "re-aligned" but kept above the border price in order to protect domestic producers.

In summary, looking at the three SALs as a sequence, it is clear that the main concern of the SALs was financial stabilization through rationalization (and reduction) of government spending. There was little explicit discussion of poverty. Nevertheless, the SALs did attempt to protect the incomes of the poor — especially farmers — by redressing the rural-urban terms of trade in favor of rural areas. In contrast, public sector wages were frozen or reduced (Serageldin, 1988). Only one major action in the social sectors was addressed in the SALs, namely the government's withdrawal from the provision of housing.

## Table 4: World Bank and IMF Support to Côte d'Ivoire's Structural Adjustment Program

### World Bank Loans

| | | Mln of Dollars |
|---|---|---|
| 1981 | Structural Adjustment Loan I | 150 |
| 1983 | Structural Adjustment Loan II | 250 |
| 1986 | Structural Adjustment Loan III | 250 |
| 1989 | Agriculture Sector Adjustment Loan | 150 |
| 1989 | Energy Sector Adjustment Loan | 100 |
| 1990 | Water Supply Sector Adjustment Loan | 80 |
| 1991 | Financial Sector Adjustment Loan | 200 |
| 1991 | Competitiveness Adjustment Loan | 100 |
| 1991 | Human Resources Adjustment Loan | 150 |

### IMF Support

| | | | Mln SDR |
|---|---|---|---|
| Feb. | 1981 | Extended Arrangement (3 yr) | 484.50 |
| May | 1984 | Stand-by Arrangement (1 yr) | 82.75 |
| June | 1985 | Stand-by Arrangement (1 yr) | 66.20 |
| June | 1986 | Stand-by Arrangement (2 yr) | 100.00 |
| Dec. | 1987 | Stand-by Arrangement (16 mos) | 94.00 |
| Nov. | 1989 | Stand-by Arrangement (17 mos) | 175.80 |
| Sept. | 1991 | Stand-by Arrangement (1 yr) | 82.75 |

## 5. Household Expenditure and the Incidence of Poverty

In this section, we begin the presentation of the empirical results for Côte d'Ivoire, 1985-88. In view of the country's macro-economic evolution, as discussed in the previous section, our presentation of the results will focus around three themes. First, since our main objective is to interpret observed patterns of welfare and poverty in a macro-economic context, it is essential to contrast findings for the 1985-86 years with those of 1987-88. Indeed, the two sub-periods were characterized by totally different macro-economic scenarios. In the first sub-period, GDP increased and the government was actively managing the economy's adjustment process. In 1987-88, this effort was abandoned and the dominating macro-economic event was a sharp fall in GDP and aggregate consumption. (In describing these macro-economic scenarios, no causality is implied between the adjustment program and the macro-economic conditions.)

Second, since the main redistributive feature of the adjustment process was the shift in the rural-urban terms of trade towards rural areas, we will attempt to pick up the effects of this by disaggregating results along the urban/rural and regional dimensions. However, for policy purposes, it is important to identify further where poverty and welfare effects were concentrated, i.e. who the losers and gainers were. For that purpose, we disaggregate results by socio-economic groups.

Third, we shall attempt to highlight links with specific policy measures, in particular those related to consumer or producer prices of specific commodities (coffee, cocoa, cotton, rice) or groups of commodities (export crops, food crops). This will be achieved by a detailed look at income and expenditure patterns.

### 5.1 The Evolution of Household Expenditure

Table 5 shows nominal and real household expenditure per capita for Côte d'Ivoire and for each of the five regions. Nominal figures were first deflated with the regional price

index, in order to make expenditure figures comparable within each year. Subsequently, all expenditures were expressed in constant 1985 CFAF by applying the CPI (see section 3.2).

Table 5 (A) shows average household expenditure per capita calculated from the distribution over households, while table 5 (B) shows the average calculated from the distribution over individuals. In the former case, expenditure per capita is viewed as the welfare level attributable to the household as a unit and averages are taken with the household as the unit of analysis. This reflects that many decisions pertaining to income/expenditure are made by the household as a unit or are largely influenced by the behavior and the decisions of the head of household. On the other hand, it must be recognized conceptually that welfare and poverty are individual attributes and are ultimately experienced by individuals. From that point of view, the individual becomes the unit of analysis and the assumption is then made that household welfare — expressed by expenditure per capita — is distributed evenly over all household members. There is no consensus in the literature about the empirical validity of this assumption, but work by Haddad and Kanbur (1989) suggests that even if information on intra-household distribution of consumption is considered, it does not necessarily invalidate patterns of poverty derived from household expenditure per capita measures. As Table 5 shows, switching from the household to the individual as the unit of analysis has the effect of lowering average calculated welfare levels. This is because poor households have above average household sizes and the individual distribution is skewed more to the left than the household distribution.

## Table 5: Nominal and Real Household Expenditure Per Capita (CFAF/yr)

| | 1985 | 1986 | 1987 | 1988 |
|---|---|---|---|---|
| **(A) Household Distribution** | | | | |
| | | | **- Côte d'Ivoire -** | |
| Nominal | 263,610 | 260,792 | 259,043 | 208,369 |
| Regionally Deflated | 292,236 | 289,659 | 284,806 | 233,293 |
| Real | 292,236 | 269,953 | 264,321 | 202,300 |
| | | | **- Abidjan -** | |
| Nominal | 457,812 | 394,489 | 477,894 | 390,778 |
| Regionally Deflated | 457,812 | 394,489 | 477,894 | 390,778 |
| Real | 457,812 | 367,650 | 443,521 | 338,864 |
| | | | **- Other Cities -** | |
| Nominal | 318,352 | 340,139 | 309,319 | 224,485 |
| Regionally Deflated | 342,919 | 363,334 | 338,080 | 242,508 |
| Real | 342,919 | 338,615 | 313,763 | 210,292 |
| | | | **- East Forest -** | |
| Nominal | 166,884 | 190,907 | 184,469 | 173,352 |
| Regionally Deflated | 191,803 | 219,423 | 209,338 | 200,217 |
| Real | 191,803 | 204,495 | 194,281 | 173,618 |
| | | | **- West Forest -** | |
| Nominal | 213,423 | 186,985 | 160,868 | 134,149 |
| Regionally Deflated | 272,748 | 250,463 | 212,662 | 185,225 |
| Real | 272,748 | 233,423 | 197,366 | 160,618 |
| | | | **- Savannah -** | |
| Nominal | 142,457 | 163,342 | 146,291 | 135,077 |
| Regionally Deflated | 187,517 | 203,879 | 178,699 | 164,966 |
| Real | 187,517 | 190,009 | 165,846 | 143,050 |

**(B) Individual Distribution**

| | | | | |
|---|---|---|---|---|
| | | **- Côte d'Ivoire -** | | |
| Nominal | 213,634 | 216,173 | 212,191 | 178,051 |
| Regionally Deflated | 237,853 | 240,250 | 233,780 | 199,587 |
| Real | 237,853 | 223,905 | 216,965 | 173,072 |
| | | **- Abidjan -** | | |
| Nominal | 376,108 | 335,698 | 401,220 | 332,938 |
| Regionally Deflated | 376,108 | 335,698 | 401,220 | 332,938 |
| Real | 376,108 | 312,859 | 372,361 | 288,708 |
| | | **- Other Cities -** | | |
| Nominal | 252,387 | 271,758 | 246,469 | 190,190 |
| Regionally Deflated | 271,864 | 290,290 | 269,385 | 205,460 |
| Real | 271,864 | 270,540 | 250,010 | 178,165 |
| | | **- East Forest -** | | |
| Nominal | 143,104 | 160,890 | 159,491 | 152,267 |
| Regionally Deflated | 164,472 | 184,922 | 180,993 | 175,864 |
| Real | 164,472 | 172,341 | 167,974 | 152,501 |
| | | **- West Forest -** | | |
| Nominal | 187,120 | 163,782 | 138,380 | 120,225 |
| Regionally Deflated | 239,134 | 219,383 | 182,934 | 165,999 |
| Real | 239,134 | 204,457 | 169,776 | 143,947 |
| | | **- Savannah -** | | |
| Nominal | 115,910 | 132,968 | 120,017 | 113,957 |
| Regionally Deflated | 152,573 | 165,967 | 146,605 | 139,172 |
| Real | 152,573 | 154,676 | 136,061 | 120,684 |

Note: The basis for regional deflation is Abidjan. Real expenditures are expressed in 1985 CFAF (see text).

For the purposes of this paper, the overriding consideration is the conceptual one, namely that poverty and welfare are individual attributes, and all remaining tables in the paper have been calculated using the individual as the unit of analysis (except where noted differently).

Table 6 expresses regional differences in real household expenditure per capita as an index number which uses the 1985 country average as 100. For the country as a whole, real household expenditure per capita declined by about 30 percent over the 1985-88 period. About two-thirds of the decline occurred in 1988. This is consistent with the real negative growth in GDP in both 1987 and 1988, and with national account figures on aggregate consumption (see section 4). Regional disparity stayed roughly the same over the period: the Abidjan average remained about 2.4 times higher than that of the poorest region — the Savannah. The relative position of the other regions however changed: among urban areas, the decline in welfare in Abidjan was less than the country's average while that in other cities exceeded it. In the rural areas, the biggest drop in welfare was recorded in West Forest, which became a poorer region than East Forest. The Savannah remained Côte d'Ivoire's poorest region over the period 1985-88, but its average expenditure level declined less than the national average.

## 5.2 The Evolution of Poverty

The thirty percent decline in household expenditure per capita over the period 1985-88 has resulted in significant increases in poverty and extreme poverty in Côte d'Ivoire (Tables 7 and 8). The fraction of the population which was poor rose from 30 percent to 45.9 percent and the fraction which was very poor went from 10 percent to 14.1 percent. This means that Côte d'Ivoire counted about 2.8 million poor people in 1986 and 4.8 million poor people in 1988 — an increase of 71 percent. In 1985, there were about 940,000 people living in extreme poverty and in 1988 this figure had risen to 1.5 million — an increase of 57 percent.

## Table 6: Pattern of Real Household Expenditure per Capita

### (A) Household Distribution

| | 1985 | 1986 | 1987 | 1988 | 1988/85 |
|---|---|---|---|---|---|
| Abidjan | 156.7 | 125.8 | 151.8 | 116.0 | .74 |
| Other Cities | 117.3 | 115.9 | 107.4 | 72.0 | .61 |
| East Forest | 65.6 | 70.0 | 66.5 | 59.4 | .91 |
| West Forest | 93.3 | 79.9 | 67.5 | 55.0 | .59 |
| Savannah | 64.2 | 65.0 | 56.8 | 49.0 | .76 |
| Côte d'Ivoire | 100.0 | 92.4 | 90.4 | 69.2 | .69 |

### (B) Individual Distribution

| | 1985 | 1986 | 1987 | 1988 | 1988/85 |
|---|---|---|---|---|---|
| Abidjan | 158.1 | 131.5 | 156.6 | 121.4 | .77 |
| Other Cities | 114.3 | 113.7 | 105.1 | 74.9 | .66 |
| East Forest | 69.1 | 72.5 | 70.6 | 64.1 | .93 |
| West Forest | 100.5 | 86.0 | 71.4 | 60.5 | .60 |
| Savannah | 64.1 | 65.0 | 57.2 | 50.7 | .79 |
| Côte d'Ivoire | 100.0 | 94.1 | 91.2 | 72.8 | .73 |

The pattern of change in poverty and extreme poverty is very different for 1985-86 than for 1987-88. As we discussed in section 4, 1985-86 were the final two years in a sustained adjustment effort which started in 1981, and were also marked by a brief economic upturn. In contrast, when the upturn ended in 1987, the Government abandoned the adjustment program and 1988 was a year of severe economic decline. 12/ Between 1985 and 1986, the incidence of poverty did not change, while the incidence of extreme poverty was reduced by over one third. In 1987, the incidence of both poverty and extreme poverty rose and the rising trend accelerated sharply in 1988. In 1988 alone, the incidence of poverty rose by 32% and the incidence of extreme poverty by 55%. Obviously, the juxtaposition of these results does not prove causality between the adjustment effort and the stability or reduction in poverty, but it does indicate two things. First, the incidence in poverty in a country can change very dramatically from one year to the other. This suggests that there can be a great deal of mobility into poverty and possibly out of it as well, and that it is necessary to monitor poverty on a regular basis — at least annually. As we explained in section 2, the CILSS data contain a panel component which is more suitable than the cross-section approach in this paper to investigate the question of mobility in and out of poverty. Work by Grootaert and Kanbur (1992b) on this panel component has confirmed that while there exists a "hard-core" type of poor, a large proportion of the poor change from year to year. Second, the severe increase in poverty in 1988 indicates that in conditions of economic recession and destabilization, a rapid "trickle-down" can occur with the potential of severely affecting the welfare of households and individuals.

A digression is in order here. When survey results suggest changes in welfare and poverty of the magnitude of those reported in tables 7 and 8, the question is inevitably raised about the quality and reliability of the survey data. While quality of survey data can never be proved in an absolute way, two investigations are possible to provide an assessment of

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12/ It is not implied that the economic upturn was caused by the adjustment program, nor that the decline was caused by the abandon of the adjustment effort.

**Table 7: Poverty Incidence in Côte d'Ivoire by Region, 1985-88**
(poverty line = 128,600 CFAF/yr)

**(A) P-Alpha Measures**

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Abidjan | 0.034 | 0.009 | 0.004 | 0.166 | 0.035 | 0.012 | 0.074 | 0.019 | 0.009 | 0.139 | 0.023 | 0.006 |
| Other Cities | 0.236 | 0.075 | 0.037 | 0.223 | 0.062 | 0.024 | 0.224 | 0.053 | 0.019 | 0.410 | 0.106 | 0.040 |
| East Forest | 0.479 | 0.155 | 0.069 | 0.395 | 0.115 | 0.045 | 0.435 | 0.111 | 0.041 | 0.494 | 0.145 | 0.062 |
| West Forest | 0.178 | 0.036 | 0.013 | 0.200 | 0.042 | 0.013 | 0.376 | 0.102 | 0.043 | 0.553 | 0.154 | 0.064 |
| Savannah | 0.502 | 0.183 | 0.088 | 0.481 | 0.142 | 0.058 | 0.578 | 0.197 | 0.093 | 0.652 | 0.258 | 0.131 |
| Côte d'Ivoire | 0.300 | 0.098 | 0.045 | 0.299 | 0.082 | 0.032 | 0.348 | 0.101 | 0.043 | 0.459 | 0.142 | 0.063 |

**(B) Decomposition (%)**

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Abidjan | 2.3 | 1.8 | 1.6 | 11.0 | 8.4 | 7.8 | 3.9 | 3.6 | 3.8 | 5.2 | 2.8 | 1.5 |
| Other Cities | 16.8 | 16.3 | 17.6 | 17.1 | 17.4 | 17.3 | 14.6 | 12.0 | 10.0 | 19.3 | 16.1 | 13.7 |
| East Forest | 37.1 | 36.8 | 35.3 | 31.8 | 33.7 | 34.5 | 29.3 | 25.8 | 22.4 | 25.5 | 24.1 | 23.3 |
| West Forest | 8.3 | 5.1 | 4.1 | 9.2 | 7.1 | 5.5 | 11.8 | 11.1 | 11.0 | 18.6 | 16.8 | 15.6 |
| Savannah | 35.6 | 39.9 | 41.4 | 30.9 | 33.3 | 34.9 | 40.3 | 47.5 | 52.9 | 31.4 | 40.2 | 45.9 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

## Table 8: Incidence of Extreme Poverty in Côte d'Ivoire by Region, 1985-88

(poverty line = 75,000 CFAF/yr)

**(A) P-Alpha Measures**

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Abidjan | 0.007 | 0.002 | 0.001 | 0.014 | 0.005 | 0.002 | 0.017 | 0.006 | 0.003 | - | - | - |
| Other Cities | 0.080 | 0.025 | 0.014 | 0.055 | 0.009 | 0.002 | 0.047 | 0.007 | 0.001 | 0.073 | 0.016 | 0.005 |
| East Forest | 0.132 | 0.038 | 0.016 | 0.095 | 0.019 | 0.007 | 0.086 | 0.015 | 0.004 | 0.139 | 0.033 | 0.011 |
| West Forest | 0.016 | 0.005 | 0.003 | 0.019 | 0.002 | 0.000 | 0.093 | 0.024 | 0.009 | 0.161 | 0.031 | 0.010 |
| Savannah | 0.226 | 0.053 | 0.019 | 0.121 | 0.025 | 0.008 | 0.194 | 0.057 | 0.022 | 0.305 | 0.088 | 0.034 |
| Côte d'Ivoire | 0.100 | 0.027 | 0.011 | 0.064 | 0.013 | 0.004 | 0.091 | 0.023 | 0.008 | 0.141 | 0.035 | 0.013 |

**(B) Decomposition (%)**

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Abidjan | 1.4 | 1.4 | 1.1 | 4.3 | 8.0 | 10.5 | 3.4 | 4.7 | 5.8 | - | - | - |
| Other Cities | 17.1 | 20.4 | 26.8 | 19.6 | 15.9 | 12.6 | 11.8 | 6.7 | 4.1 | 11.1 | 9.6 | 8.6 |
| East Forest | 31.0 | 32.9 | 32.3 | 35.7 | 36.5 | 37.8 | 22.1 | 15.9 | 11.8 | 23.3 | 22.2 | 20.5 |
| West Forest | 2.2 | 2.8 | 3.9 | 4.2 | 2.0 | 1.3 | 11.1 | 11.5 | 11.6 | 17.6 | 13.5 | 11.8 |
| Savannah | 48.3 | 42.5 | 35.9 | 36.2 | 37.7 | 37.8 | 51.7 | 61.3 | 66.7 | 47.9 | 54.7 | 59.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

data quality. First, one can review sampling and field procedures which affect sampling and measurement error in the data. As discussed in section 2, we have reviewed these in detail and made the necessary corrections to compensate for certain sampling deficiencies. Quality control during CILSS data collection and data entry were extraordinary in comparison with usual survey practice (see Ainsworth and Munoz, 1986; Grootaert, 1986; Daho, 1992). The many analyses undertaken with the data (see earlier references) have shown a high degree of internal consistency in the data. This brings us to the second course of investigation: consistency with other data sources — census, other surveys, national accounts. Such comparisons have to be treated with caution, because it is not always clear that the "reference data" are of better quality than the survey results. We reported in section 2 that household size in the 1988 CILSS closely matched that reported in the 1988 Population Census. Selected demographic variables from the survey have been compared with the Côte d'Ivoire Fertility Survey and were found to be consistent (Ainsworth, 1989). Farming information in the CILSS was evaluated against other sources and found to be quite good (Deaton and Benjamin, 1988). Most importantly for this analysis is that the pattern of household expenditure observed for Côte d'Ivoire as a whole is entirely consistent with the pattern of macro-evolution recorded in the national accounts and in other macro-data. Both the upturn in 1986 and the decline in 1987-88 are picked up by the CILSS data. In summary, we feel confident that the CILSS data are a valid data source to explore the evolution of welfare and poverty, and that its main shortcomings — sampling deficiencies — have adequately been corrected in this research as explained in section 2.

Let us return now to the discussion of the empirical results. The pattern of increase in the incidence of poverty which we noted for Côte d'Ivoire as a whole did not occur in each region. In Abidjan and other cities poverty rose at an even faster rate than the national average. However, the basis from which this increase occurred was quite small, since the incidence of poverty in cities, especially Abidjan, was quite low in 1985. The decomposition of $P_0$ reported in Table 7 (B) shows that the share of urban poverty in the total rose from 19.1 percent in 1985 to 24.5 percent in 1988. Poverty thus has become a relatively more urban phenomenon in Côte d'Ivoire, even though the vast majority of the poor are still

located in the rural areas. Within the latter, a major shift took place, however: in West Forest, the incidence of poverty more than tripled, making it the second poorest region in 1988 (as opposed to the region with the second lowest poverty incidence in 1985). The reasons for this sharp decline have to do with the socio-economic make-up of this region (four-fifths of households are farmers, and farm income fell very sharply over the period — see section 5.3). Although in the Savannah the increase in poverty was well below the national average, it remained Côte d'Ivoire's poorest region in 1988: with a poverty incidence of 65.2 percent, it accounted for almost one third of all poor.

Although the country-wide evolution of extreme poverty between 1985 and 1988 paralleled that of poverty, the regional pattern was not the same. In particular, the incidence of extreme poverty did not increase in urban areas. The main increase took place in West Forest where the incidence of extreme poverty increased tenfold from 1.6 to 16.1 percent. Equally important was the increase in the Savannah from 22.6 to 30.5 percent, which meant that in 1988 Savannah accounted for almost half of the very poor in Côte d'Ivoire. In fact, one of every two poor persons in the Savannah was in extreme poverty. Obviously, this region remains a prime target for poverty-oriented policy interventions.

The differences in the patterns of poverty and extreme poverty indicate that important shifts can occur within the poor and underline the importance of using two poverty lines in the analysis.

Next to looking at the incidence of poverty, the depth of poverty must be investigated and this is done on the basis of $P_1$ and $P_2$ in Tables 7 and 8. These two measures display the same pattern over time as $P_0$, but less pronounced. For example, $P_2$ for overall poverty rises from .045 to .063 between 1985 and 1988 — a 40 percent increase as opposed to a 53 percent rise in $P_0$. This means that conditions for the people at the very bottom of the distribution deteriorated relatively less than for the poor as a group. In one region, East Forest, $P_2$ actually was lower in 1988 than in 1985.

In order to separate more directly the evolution of incidence and depth of poverty, Table 9 shows the mean expenditure level of each poverty group and the expenditure gap ratio — the mean proportionate shortfall of expenditure from the poverty line (see section 3). Mean expenditure per capita for the poor as well as for the very poor increased between 1985 and 1986 and fell thereafter (but the 1988 mean was still 2% above the 1985 mean). In contrast, mean expenditure of the non-poor fell by 19 percent over the period. 13/

**Table 9: Mean Household Expenditure Per Capita and Expenditure Gap Ratio, by Poverty Status**

| | 1985 | 1986 | 1987 | 1988 | Change 1985-88 |
|---|---|---|---|---|---|
| | - Household Expenditure Per Capita (CFAF/yr) - | | | | |
| Very poor | 55,008 | 60,087 | 56,447 | 56,222 | +2.2% |
| Poor | 86,781 | 93,280 | 91,395 | 88,752 | +2.3% |
| Non-poor | 302,767 | 279,731 | 284,095 | 244,547 | -19.2% |
| Côte d'Ivoire | 237,853 | 223,905 | 216,965 | 173,072 | -27.2% |
| | - Expenditure Gap Ratio - | | | | |
| Very poor | .272 | .203 | .253 | .248 | -8.8% |
| Poor | .326 | .274 | .290 | .309 | -5.2% |

Likewise, the expenditure gap ratio for the poor and very poor declined between 1985 and 1986, i.e. the distance of the average poor person's expenditure from the poverty line

13/ Note that the country-wide change in Table 9 is not an average of the change in each category, because the number of people in each category is not the same over the four years. In particular, the number of poor and very poor increased considerably.

diminished. In 1987 and 1988, the ratio increased, indicating that the poor became poorer over that period (in addition to the rise in the number of poor).

The difference in the evolution of mean expenditure per capita between the poor and the non-poor, and the difference in the trends between 1985-86 and 1987-88 provides a first indication that one intent of the adjustment program, namely to shift the burden of adjustment to the better-off, may in fact have been realized. It also shows that the rich have not been shielded from the recession in 1987-88.

The figures in Tables 7-9 provide some useful guidance for designing and targeting policy interventions aimed at alleviating poverty. First and foremost, the results show that poverty alleviation efforts have become much more needed in view of the sharp rise in poverty. Second, the main target zones are West Forest, where poverty has risen fastest, and Savannah, where extreme poverty affects one third of the rural population. Together, the two zones account for half of all poor in Côte d'Ivoire. Third, urban poverty is a rising phenomenon in Côte d'Ivoire and will require increasing attention. Fourth, the rapid evolution of poverty and the shifting pattern indicate the need for regular monitoring at the sub-national level.

The figures (especially $P_1$) are also useful to estimate the size of resources needed to alleviate poverty. E.g. in 1988, $P_1 = .106$ for Other Cities. This means that poverty in Other Cities could be eliminated if every resident of Other Cities transferred 10.6 percent of the poverty line, i.e. 13,632 CFAF to the people below the poverty line (with perfect targeting). Estimating the Other Cities population at about 2.5 million, this implies a total transfer of 34,080 million CFAF. Alternatively, this is the amount of new income that needs to be generated among the poor in order to eliminate the poverty gap. If one were to make the optimistic assumption that new income generated under economic growth is distributed in equal proportions to everyone, regardless of current income, then a total of 340,800 million CFAF of new income would have to be generated in the economy to eliminate poverty in Other Cities, given that the Other Cities' poor are about 10 percent of the

country's population. This amount represents 11 percent of Côte d'Ivoire's GDP in 1988. With more realistic assumptions about the distribution of new income, the total growth requirement would increase. While such total resource requirements are only indicative and a function of the distribution assumptions made, performing such calculations for each region may help set priorities for channeling resources to different regions and help to clarify the link between economic growth and poverty reduction.

## 5.3 The Socio-Economic Pattern of Poverty

In order to get a better grasp on how the changes in welfare and poverty relate to macro-economic events, we next use the decomposition property of the $P_\alpha$ measures to estimate what happened to poverty within socio-economic groups in Côte d'Ivoire and what contribution this made to total poverty. For this purpose, we define socio-economic groups according to the household's main source of income and/or the main economic activity of the head of household. Since many of the adjustment measures were geared towards certain types of income earners (e.g., government and parastatal employees, export crop farmers), this classification of households provides a direct link with the macro-economy.

We defined eight mutually exclusive socio-economic groups as follows. First, a distinction was made between farming and non-farming households. A farming household had cultivated fields during the survey's reference year and obtained more than 50 percent of its earned income from agricultural activities. Second, in view of the importance of SAL measures related to export crops, we divided farmers into export crop and food crop farmers. Export crop farmers derived more than 50 percent of farm revenues from the sale of export crops. Third, non-farming households were further subdivided according to the main sector of employment and the work status of the head of household. We distinguished inactive, unemployed, self-employed and employee (wage-earner) heads of household, using standard ILO definitions of these concepts. Employees were further split according to sector. The public sector consisted of the government and parastatal enterprises. The private sector was divided into formal or informal depending upon whether employees

received any form of legal or social protection associated with the formal sector. The CILSS recorded several attributes useful for this purpose such as whether the employee had a written contract, whether there was a union at the work place, whether minimum wages were applied, and whether the employee received social security benefits (pension, paid leave, paid sick leave, etc.). In view of the relative rarity of these attributes, an employee was considered to be in the formal sector if he/she was the beneficiary of at least one of these attributes (see Grootaert, 1987, 1992, for a further discussion and analysis of the formal/informal distinction).

Tables 10 and 11 show that the incidence and depth of poverty varied a great deal across different socio-economic groups as did the over-time patterns. On a relative basis, poverty increased most for households of public sector employees. However, poverty incidence doubled in the private sector — to the same extent in the formal and informal sectors. Increases in $P_1$ and $P_2$ were much more pronounced for public sector employees and in the informal sector, suggesting a substantial deterioration for those employees at the bottom of the earnings scale. This is confirmed by Table 11 which shows marked increases of extreme poverty in those two groups. The depth of poverty also increased for both groups, especially for public sector employees where the expenditure gap ratio ($P_1/P_0$) almost doubled from .14 to .23.

These findings are consistent with the earlier noted rise in urban poverty and with the wage policy of SAL II which was to freeze government worker wages and to reduce those of parastatal workers. The impact of these measures does not appear to have affected all government workers equally, but particularly those with the lowest earnings. This implies that special protective programs for those workers would have been in order. The results also indicate that the private formal sector has succeeded better than the public sector in shielding itself from the contraction in economic activity. Perhaps the sector benefitted from the industrial reform measures in SAL II aimed at promoting exports. On the other hand, the informal sector has clearly not been able to take advantage of any opportunities the adjustment program may have offered.

## Table 10: Poverty Incidence in Côte d'Ivoire by Socio-Economic Group, 1985-88

(poverty line = 128,600 CFAF/yr)

**(A) P-Alpha Measures**

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Export Crop Farmer | 0.366 | 0.094 | 0.038 | 0.354 | 0.099 | 0.037 | 0.477 | 0.150 | 0.063 | 0.548 | 0.179 | 0.087 |
| Food Crop Farmer | 0.434 | 0.144 | 0.065 | 0.411 | 0.121 | 0.048 | 0.473 | 0.132 | 0.055 | 0.590 | 0.196 | 0.087 |
| Public Sector Employee | 0.049 | 0.007 | 0.001 | 0.056 | 0.006 | 0.001 | 0.072 | 0.016 | 0.006 | 0.213 | 0.050 | 0.018 |
| Private Formal Sector Employee | 0.071 | 0.014 | 0.005 | 0.096 | 0.009 | 0.001 | 0.061 | 0.012 | 0.004 | 0.151 | 0.025 | 0.007 |
| Informal Sector Employee | 0.262 | 0.075 | 0.028 | 0.401 | 0.097 | 0.028 | 0.364 | 0.090 | 0.040 | 0.542 | 0.183 | 0.093 |
| Self-Employed | 0.262 | 0.104 | 0.058 | 0.287 | 0.077 | 0.030 | 0.333 | 0.084 | 0.033 | 0.462 | 0.127 | 0.052 |
| Inactive | 0.183 | 0.075 | 0.043 | 0.211 | 0.047 | 0.015 | 0.327 | 0.141 | 0.080 | 0.319 | 0.080 | 0.031 |
| Unemployed | 0.041 | 0.005 | 0.001 | 0.346 | 0.119 | 0.067 | 0.312 | 0.049 | 0.009 | 0.383 | 0.151 | 0.076 |
| Côte d'Ivoire | 0.300 | 0.098 | 0.045 | 0.299 | 0.082 | 0.032 | 0.349 | 0.101 | 0.043 | 0.459 | 0.142 | 0.063 |

**(B) Decomposition (%)**

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Export Crop Farmer | 14.5 | 11.5 | 10.0 | 21.8 | 22.2 | 21.6 | 25.9 | 28.0 | 27.9 | 17.7 | 18.7 | 20.6 |
| Food Crop Farmer | 63.6 | 65.2 | 63.8 | 51.2 | 54.9 | 56.4 | 48.8 | 47.2 | 46.4 | 52.4 | 56.2 | 56.9 |
| Public Sector Employee | 1.7 | 0.8 | 0.3 | 2.4 | 1.0 | 0.4 | 3.0 | 2.4 | 1.9 | 6.2 | 4.8 | 3.8 |
| Private Formal Sector Employee | 2.4 | 1.4 | 1.1 | 2.3 | 0.7 | 0.3 | 1.5 | 1.0 | 0.8 | 3.0 | 1.6 | 1.0 |
| Informal Sector Employee | 1.5 | 1.3 | 1.0 | 1.8 | 1.6 | 1.2 | 1.8 | 1.5 | 1.6 | 1.6 | 1.7 | 2.0 |
| Self-Employed | 12.8 | 15.6 | 18.7 | 14.1 | 13.8 | 14.0 | 12.9 | 11.3 | 10.3 | 14.8 | 13.2 | 12.2 |
| Inactive | 3.3 | 4.2 | 5.1 | 4.9 | 4.0 | 3.4 | 5.6 | 8.3 | 11.1 | 3.5 | 2.8 | 2.4 |
| Unemployed | 0.2 | 0.1 | 0.0 | 1.5 | 1.8 | 2.7 | 0.6 | 0.3 | 0.1 | 0.9 | 1.1 | 1.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Table 11: Incidence of Extreme Poverty in Côte d'Ivoire by Socio-Economic Group, 1985-88
(poverty line = 75,000 CFAF/yr)

(A) P-Alpha Measures

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Export Crop Farmer | 0.086 | 0.020 | 0.006 | 0.081 | 0.013 | 0.004 | 0.148 | 0.031 | 0.009 | 0.210 | 0.058 | 0.022 |
| Food Crop Farmer | 0.150 | 0.036 | 0.013 | 0.101 | 0.020 | 0.006 | 0.111 | 0.029 | 0.010 | 0.197 | 0.047 | 0.016 |
| Public Sector Employee | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.009 | 0.002 | 0.001 | 0.039 | 0.005 | 0.001 |
| Private Formal Sector Employee | 0.008 | 0.002 | 0.001 | 0.000 | 0.000 | 0.000 | 0.013 | 0.001 | 0.000 | 0.007 | 0.002 | 0.001 |
| Informal Sector Employee | 0.099 | 0.004 | 0.001 | 0.000 | 0.000 | 0.000 | 0.067 | 0.028 | 0.016 | 0.220 | 0.071 | 0.026 |
| Self-Employed | 0.115 | 0.043 | 0.025 | 0.052 | 0.012 | 0.005 | 0.070 | 0.015 | 0.004 | 0.107 | 0.027 | 0.009 |
| Inactive | 0.063 | 0.032 | 0.021 | 0.028 | 0.005 | 0.001 | 0.176 | 0.065 | 0.032 | 0.072 | 0.013 | 0.006 |
| Unemployed | 0.000 | 0.000 | 0.000 | 0.137 | 0.061 | 0.027 | 0.000 | 0.000 | 0.000 | 0.088 | 0.049 | 0.028 |
| Côte d'Ivoire | 0.100 | 0.027 | 0.011 | 0.064 | 0.013 | 0.004 | 0.092 | 0.023 | 0.008 | 0.140 | 0.035 | 0.012 |

(B) Decomposition (%)

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Export Crop Farmer | 10.4 | 8.8 | 5.7 | 23.2 | 19.2 | 17.0 | 30.7 | 25.7 | 20.8 | 22.2 | 24.7 | 26.3 |
| Food Crop Farmer | 66.5 | 60.2 | 51.5 | 59.1 | 58.1 | 55.1 | 43.8 | 45.1 | 43.6 | 57.3 | 55.2 | 53.7 |
| Public Sector Employee | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.4 | 1.3 | 1.4 | 3.7 | 2.0 | 1.4 |
| Private Formal Sector Employee | 0.8 | 0.8 | 0.5 | 0.0 | 0.0 | 0.0 | 1.2 | 0.2 | 0.0 | 0.4 | 0.6 | 0.5 |
| Informal Sector Employee | 1.7 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 1.3 | 2.1 | 3.5 | 2.1 | 2.7 | 2.8 |
| Self-Employed | 16.9 | 23.5 | 32.2 | 11.9 | 14.1 | 17.7 | 10.2 | 8.6 | 7.1 | 11.1 | 11.4 | 10.8 |
| Inactive | 3.4 | 6.5 | 10.0 | 3.1 | 2.5 | 2.2 | 11.4 | 16.9 | 23.6 | 2.5 | 1.9 | 2.3 |
| Unemployed | 0.0 | 0.0 | 0.0 | 2.7 | 6.1 | 8.0 | 0.0 | 0.0 | 0.0 | 0.7 | 1.5 | 2.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | '00.0 |

Among farmers, the incidence of poverty was highest for food crop farmers, but poverty rose faster among export crop farmers. In fact, the representation of food crop farmers among all poor fell significantly, from 63.6 to 52.4 percent over the four years. The depth of poverty and the incidence of extreme poverty has also become a more severe problem among export crop farmers.

A fuller understanding of these trends would be helped by the simultaneous consideration of regional and socio-economic patterns, since socio-economic groups are not distributed equally across regions. Unfortunately, the CILSS sample size is too small to permit this: a cross-tabulation of region by socio-economic group yields a table with 40 cells of which almost half have less than 30 observations. However, a meaningful cross-tabulation can be done over farmers and rural regions (Table 12). This shows that the distribution of types of farmers over the regions is fairly stable over time. The main change is an increase of export crop farmers in Savannah (due to growing production of cotton in that region).

More importantly, it shows that welfare levels within each farmer category differed a great deal across regions and also changed differently over time. Average expenditure of export crop farmers in West Forest was more than twice that of their colleagues in Savannah in 1985, but it declined much more rapidly. Expenditure of food-crop farmers in West Forest also fell sharply: a 47% drop between 1985 and 1988. The increased incidence of extreme poverty among export crop farmers is concentrated in West Forest and Savannah - in the latter region average expenditure of these farmers is barely above the extreme poverty line. The relative improvement among food-crop farmers was in large measure due to East Forest where there was even an absolute increase in welfare level. Table 12 shows that reasons for the change in welfare must be sought in the evolution of farm income. Farm income of export crop farmers in West Forest was reduced by almost half over the four-year period, which makes it not surprising that there was such a large rise in poverty.

The findings on socio-economic patterns of poverty lead to two policy considerations. First, in general, poverty has become more widespread across the socio-economic spectrum

in Côte d'Ivoire. This will make it more necessary but also more difficult to effectively target the poor. Second, many measures in SAL II and III were aimed at promoting export crops and should thus have benefitted export crop farmers. It was deemed especially crucial to maintain official prices for coffee and cocoa. In spite of this, export crop farmers have been hurt.

**Table 12: Distribution of Farmers Across Rural Regions**

| | Export Crop Farmers | | | Food Crop Farmers | | |
|---|---|---|---|---|---|---|
| | 1985 | 1988 | 1985-88 Change | 1985 | 1988 | 1985-88 Change |
| | ---------- distribution of individuals ---------- | | | | | |
| East Forest | 51.4% | 45.8% | -10.9% | 32.3% | 29.9% | - 7.4% |
| West Forest | 30.7% | 31.4% | + 2.3% | 19.0% | 21.8% | +14.7% |
| Savannah | 9.4% | 16.9% | +79.8% | 41.0% | 41.1% | + 0.2% |
| Total 1/ | 91.5% | 94.1% | + 2.8% | 92.3% | 92.8% | + 0.5% |
| | -- average household expenditure per capita (CFAF/year) -- | | | | | |
| East Forest | 181,031 | 146,344 | -19.2% | 147,667 | 157,312 | +6.5% |
| West Forest | 239,000 | 158,550 | -33.7% | 250,298 | 132,519 | -47.1% |
| Savannah | 116,605 | 87,406 | -25.0% | 152,800 | 118,332 | -22.6% |
| | ------ farm income (CFAF/year) ------ | | | | | |
| East Forest | 1,268,456 | 1,123,182 | -11.4% | 587,029 | 611,293 | +4.1% |
| West Forest | 1,115,022 | 798,630 | -28.4% | 971,953 | 507,687 | -47.8% |
| Savannah | 847,434 | 529,456 | -37.5% | 642,770 | 564,564 | -12.2% |

1/ The total is not 100% because some farmers are located in areas designated as urban in the CILSS.

The CILSS results show that farmers indeed received the official unit price for their crops, but that their revenues from the sale of coffee and cocoa fell sharply due to a reduction in the quantity sold (Table 13). This in turn reflected a diminished cropping area devoted to these two crops, but this reduction was much less than the fall in output sold, suggesting falling yields. This pattern occurred for both cocoa and coffee, but much more so for the latter. It was also much more pronounced in West Forest than in East Forest. One lesson from this is that price support measures for export crops are not sufficient to ensure sustained production and income for farmers, but must be accompanied by a comprehensive support system including extension service, provision of farm inputs, etc. In the event, the absence of this led to sharply falling incomes for farmers, especially in West Forest, which in turn led to rapidly rising poverty. The incidence of poverty among export crop farmers is likely to have augmented further after 1988, since in 1989 official producer prices of coffee and cocoa were cut in half.

**Table 13: Average Production and Sales of Cocoa and Coffee per Farmer in East and West Forest, 1985 and 1988**

| | East Forest | | | West Forest | | |
|---|---|---|---|---|---|---|
| | 1985 | 1988 | 1985-88 Change | 1985 | 1988 | 1985-88 Change |
| Area under production (ha) | | | | | | |
| - cocoa | 4.37 | 4.25 | -2.7% | 3.08 | 3.36 | +9.1% |
| - coffee | 3.69 | 3.12 | -15.4% | 3.98 | 3.00 | -24.6% |
| Quantity sold (kg) | | | | | | |
| - cocoa | 2067 | 1870 | -10.5% | 2121 | 1043 | -50.8% |
| - coffee | 1858 | 1252 | -32.6% | 2773 | 978 | -64.7% |

## 5.4 Sensitivity Analysis

As was explained in section 3, the two poverty lines on which the analysis so far has been based were selected to cut off, in the initial year, 30 percent and 10 percent of individuals ranked by household expenditure per capita. The selection of these cut-off points was of course arbitrary — we argued that the key issue was to keep the chosen poverty lines constant over time in real terms so that the evolution of poverty could be assessed. However, it is essential to undertake sensitivity analysis to see whether observed cross-sectional and over-time patterns are robust to changes in the poverty line. We therefore recalculated the regional and national $P_\alpha$ measures for alternative poverty lines set at 10 percent below and above the original ones. The results are that levels of poverty decreased or increased accordingly, but by more than 10 percent (Tables 14 and 15). This is a normal result which will obtain as long as the poverty line is below the median, given that the expenditure distribution is skewed to the left.

More important is that tables 14 and 15 show that the same cross-sectional patterns and over-time trends are observed as with the original lines. This confirms that the analysis and findings presented so far are not sensitive to the exact position of the poverty line.

## 5.5 Dominance Test

Sensitivity analysis is primarily useful to check whether the observed general pattern of poverty is robust to relatively small changes in the location of the poverty line. It is possible to expand the inquiry to cover a wider range of poverty lines and to include changes in poverty measures as well. This involves dominance analysis and requires plotting the entire distribution curves for the regions, socio-economic groups, or years to be compared. In principle, the complete distributions must be plotted, but in practice this can be restricted to the highest possible location of the poverty line.

## Table 14: Poverty Incidence in Côte d'Ivoire: Sensitivity Analysis

(A) Poverty Line increased by 10% (i.e. 141,460 CFAF/Yr)

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Abidjan | 0.054 | 0.012 | 0.005 | 0.193 | 0.048 | 0.017 | 0.132 | 0.028 | 0.011 | 0.186 | 0.035 | 0.010 |
| Other Cities | 0.274 | 0.091 | 0.045 | 0.278 | 0.079 | 0.032 | 0.276 | 0.071 | 0.026 | 0.476 | 0.137 | 0.054 |
| East Forest | 0.536 | 0.187 | 0.087 | 0.493 | 0.145 | 0.060 | 0.483 | 0.142 | 0.056 | 0.547 | 0.180 | 0.080 |
| West Forest | 0.237 | 0.052 | 0.018 | 0.283 | 0.061 | 0.019 | 0.501 | 0.134 | 0.056 | 0.588 | 0.192 | 0.083 |
| Savannah | 0.579 | 0.214 | 0.107 | 0.550 | 0.176 | 0.075 | 0.633 | 0.234 | 0.114 | 0.725 | 0.298 | 0.157 |
| Côte d'Ivoire | 0.350 | 0.118 | 0.056 | 0.366 | 0.105 | 0.042 | 0.409 | 0.126 | 0.055 | 0.515 | 0.174 | 0.080 |

(B) Poverty Line decreased by 10% (i.e. 115,740 CFAF/yr)

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Abidjan | 0.029 | 0.006 | 0.003 | 0.109 | 0.023 | 0.009 | 0.048 | 0.015 | 0.007 | 0.091 | 0.013 | 0.003 |
| Other Cities | 0.185 | 0.060 | 0.030 | 0.185 | 0.047 | 0.017 | 0.172 | 0.038 | 0.013 | 0.316 | 0.077 | 0.028 |
| East Forest | 0.418 | 0.122 | 0.052 | 0.339 | 0.087 | 0.032 | 0.337 | 0.080 | 0.028 | 0.400 | 0.113 | 0.046 |
| West Forest | 0.113 | 0.024 | 0.009 | 0.152 | 0.027 | 0.008 | 0.272 | 0.076 | 0.032 | 0.437 | 0.117 | 0.047 |
| Savannah | 0.421 | 0.151 | 0.069 | 0.410 | 0.109 | 0.041 | 0.506 | 0.159 | 0.073 | 0.582 | 0.219 | 0.106 |
| All | 0.248 | 0.078 | 0.035 | 0.246 | 0.061 | 0.022 | 0.280 | 0.077 | 0.032 | 0.375 | 0.112 | 0.048 |

## Table 15: Incidence of Extreme Poverty in Côte d'Ivoire: Sensitivity Analysis

(A) Extreme Poverty Line increased by 10% (i.e. 82,500 CFAF/yr)

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Abidjan | 0.010 | 0.002 | 0.001 | 0.039 | 0.006 | 0.003 | 0.022 | 0.007 | 0.003 | 0.009 | 0.000 | 0.000 |
| Other Cities | 0.087 | 0.031 | 0.017 | 0.076 | 0.014 | 0.004 | 0.054 | 0.011 | 0.003 | 0.119 | 0.023 | 0.008 |
| East Forest | 0.192 | 0.049 | 0.021 | 0.125 | 0.027 | 0.010 | 0.115 | 0.023 | 0.007 | 0.182 | 0.044 | 0.016 |
| West Forest | 0.034 | 0.007 | 0.004 | 0.037 | 0.004 | 0.001 | 0.119 | 0.031 | 0.012 | 0.193 | 0.044 | 0.015 |
| Savannah | 0.270 | 0.071 | 0.027 | 0.178 | 0.036 | 0.012 | 0.267 | 0.073 | 0.029 | 0.375 | 0.110 | 0.045 |
| Côte d'Ivoire | 0.127 | 0.034 | 0.015 | 0.095 | 0.019 | 0.006 | 0.121 | 0.030 | 0.011 | 0.183 | 0.047 | 0.018 |

(B) Extreme Poverty Line decreased by 10% (i.e. 67,500 CFAF/yr)

| | 1985 | | | 1986 | | | 1987 | | | 1988 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ | $P_0$ | $P_1$ | $P_2$ |
| Abidjan | 0.007 | 0.001 | 0.000 | 0.011 | 0.004 | 0.002 | 0.017 | 0.004 | 0.002 | - | - | - |
| Other Cities | 0.049 | 0.021 | 0.012 | 0.031 | 0.005 | 0.001 | 0.026 | 0.003 | 0.001 | 0.050 | 0.010 | 0.003 |
| East Forest | 0.112 | 0.028 | 0.012 | 0.060 | 0.013 | 0.005 | 0.054 | 0.009 | 0.002 | 0.113 | 0.023 | 0.007 |
| West Forest | 0.011 | 0.004 | 0.003 | 0.004 | 0.001 | 0.000 | 0.080 | 0.017 | 0.006 | 0.118 | 0.020 | 0.006 |
| Savannah | 0.169 | 0.039 | 0.013 | 0.075 | 0.017 | 0.006 | 0.170 | 0.043 | 0.015 | 0.238 | 0.066 | 0.024 |
| Total | 0.075 | 0.020 | 0.009 | 0.039 | 0.009 | 0.003 | 0.072 | 0.016 | 0.005 | 0.108 | 0.025 | 0.009 |

For the most stringent test — first-order dominance — we need to plot the cumulative expenditure distribution, showing the cumulative percent of people at successive levels of expenditure per capita. It can be shown that if this curve for, say, year 1 lies entirely to the right and below that for year 2, then poverty has unambiguously increased between years 1 and 2, regardless of where one draws the poverty line and regardless of the poverty measure used (at least so long as the measure has certain basic desirable properties). If the two distribution curves intersect, the conclusions about changes in poverty will depend upon where one sets the poverty line and may also vary for different poverty measures. In that case, it is possible to restrict the comparison to a narrower class of poverty measures, such as those which reflect the depth of poverty (e.g., $P_1$ and $P_2$). If one then plots a "poverty deficit curve" (defined by the area under the cumulative distribution), one can test for second-order dominance. Higher-order dominance tests also exist. 14/

For the purposes of this paper we wanted to test the robustness of two of the main findings, viz. the overall increase in the incidence of poverty between 1985 and 1988, and the increase in the urban component. Figure 1 compares the cumulative distribution of per capita expenditure, first on a year-by-year basis and then for the entire period (the distribution is only shown up to about the seventieth percentile — surely a reasonably upper limit for the poverty line). Between 1985 and 1986, the curves intersect repeatedly between the twentieth and thirty-fifth percentile showing that the conclusions regarding poverty incidence are sensitive to where in that range the poverty line is set. Only a poverty line below the twentieth percentile will yield an unambiguous reduction in poverty. In contrast, Figure 1(B) shows that the 1987 distribution is entirely to the left and above the 1986 one, indicating an unambiguous increase in poverty. Figures 1(C) and 1(D) show that this is also the case between 1987 and 1988, and for the entire 1985-88 period.

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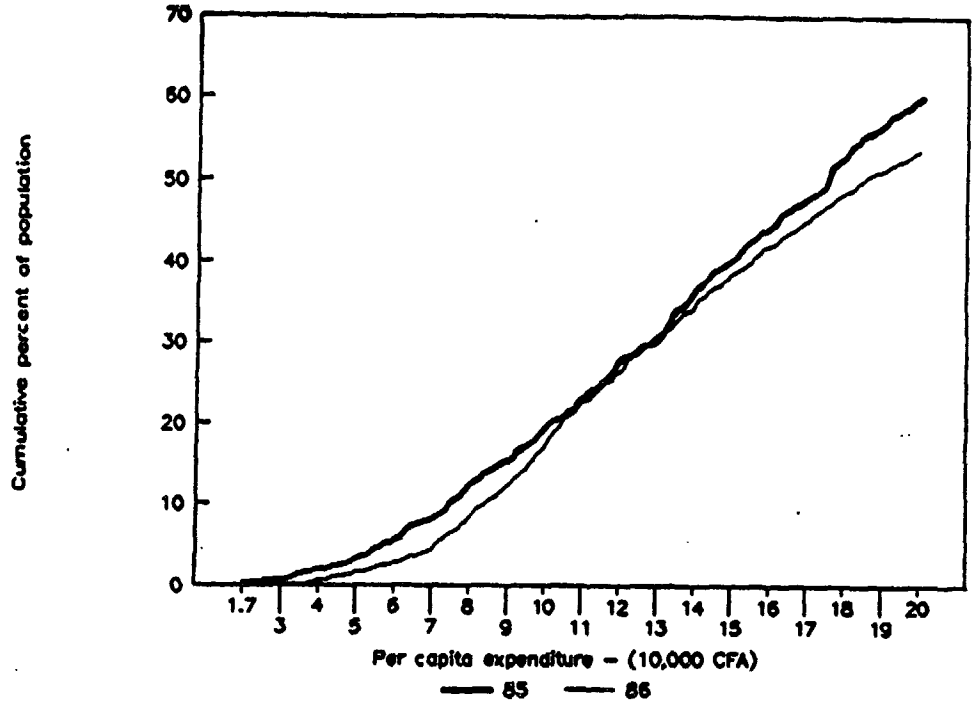
14/ See Atkinson (1987), Foster and Shorrocks (1988) and Ravallion (1992) for a further discussion of dominance.

Figure 2 breaks down the 1985-88 comparison by region. In Abidjan, first-order dominance is very clear, except at the very bottom (about one percent of individuals). Obviously, this is not of a nature to affect the conclusion that poverty increased in Abidjan over the period. For other cities the case is a bit less clear. There are several intersections below the 10 percent mark, indicating that conclusions about extreme poverty are not likely to be robust. However, the rest of the 1988 distribution is very clearly dominated by the 1985 one, indicating an unambiguous increase in poverty. Lastly, for rural areas first-order dominance is met completely.

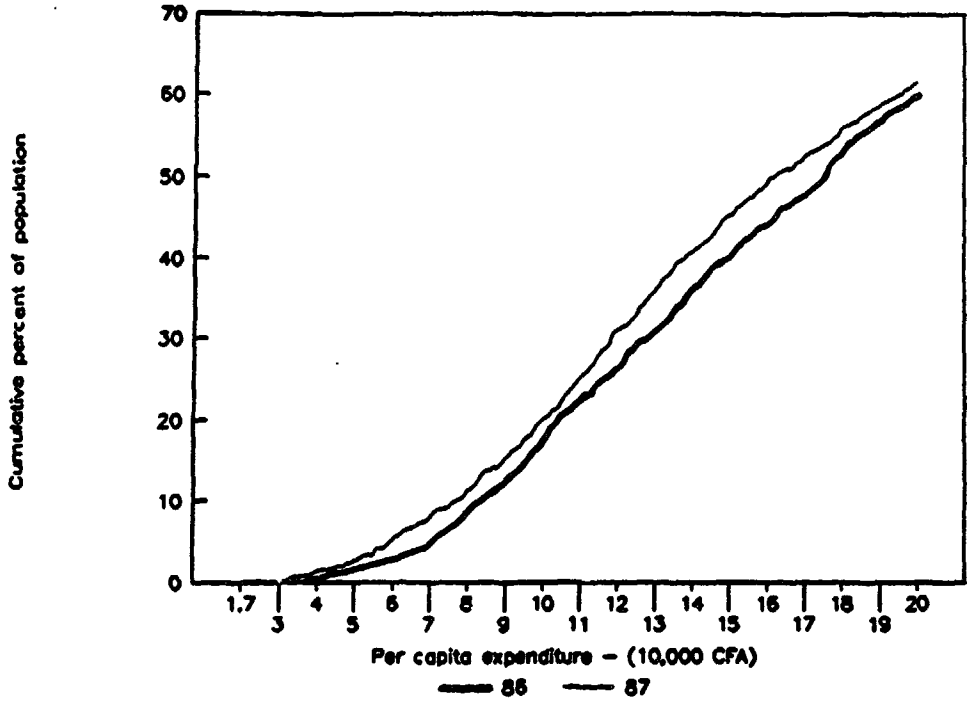
In summary, some caution is needed in assessing the change in the incidence of country-wide poverty between 1985 and 1986, and in assessing the change in incidence of extreme poverty in cities other than Abidjan, as the conclusions may be affected by the location of the poverty line and possibly the type of poverty measure used as well. However, all other findings are clearly robust, in particular the two main findings that overall poverty increased in Côte d'Ivoire between 1985 and 1988, and that it did so in each region. This conclusion holds regardless of where the poverty line is put and what poverty measure is used.

**Figure 1: Cumulative Distribution of Household Expenditure per Capita, Côte d'Ivoire, 1985-88**

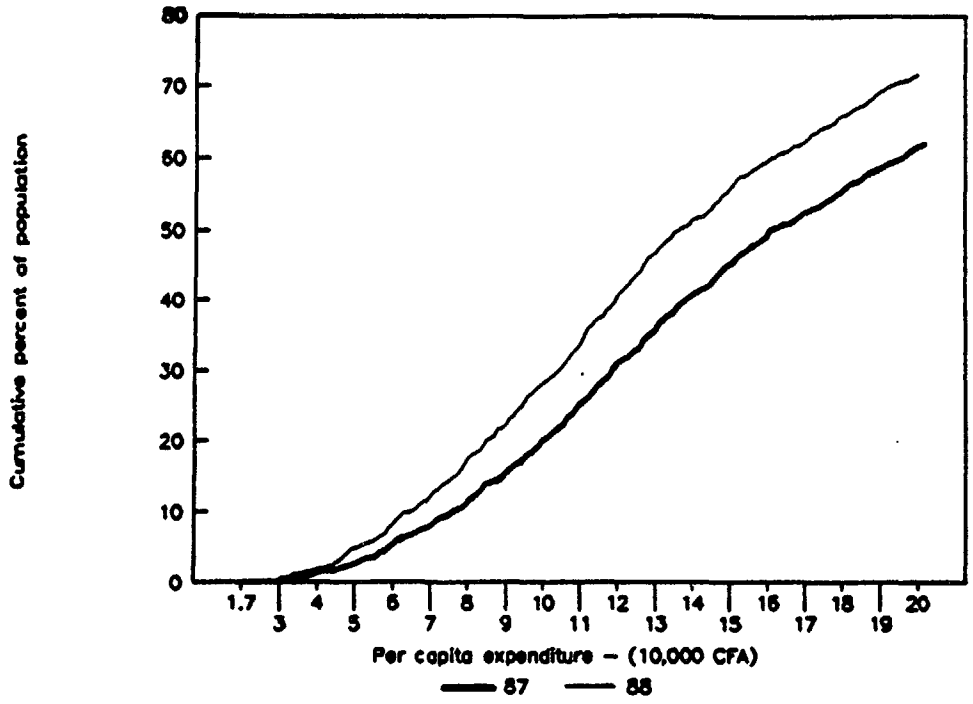
(A) 1985-86




(B) 1986-87



(C) 1987-88




(D) 1985-88

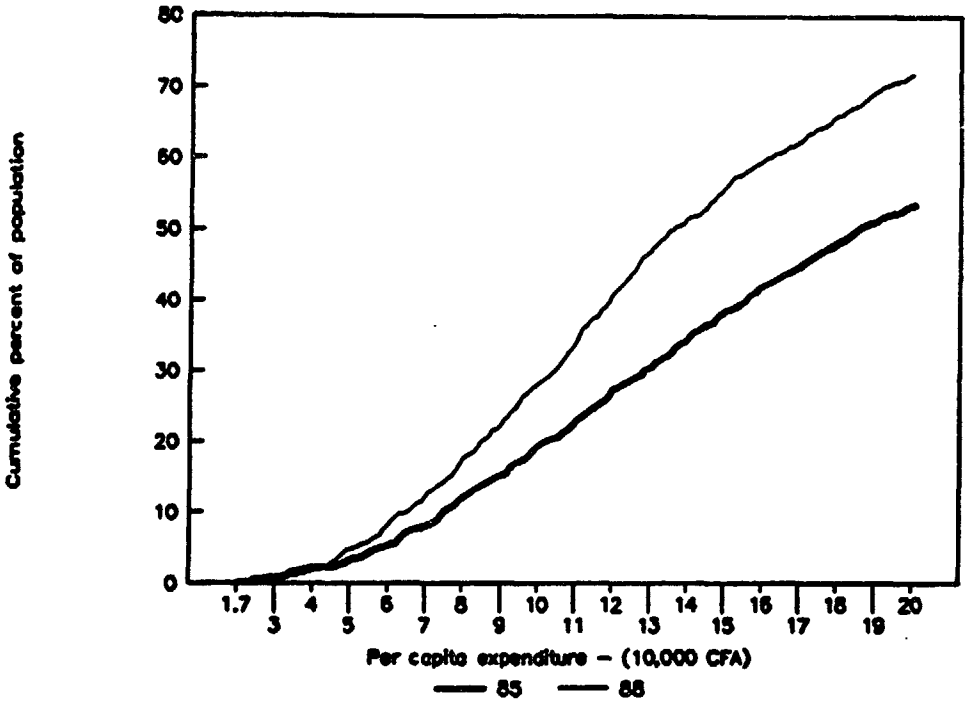
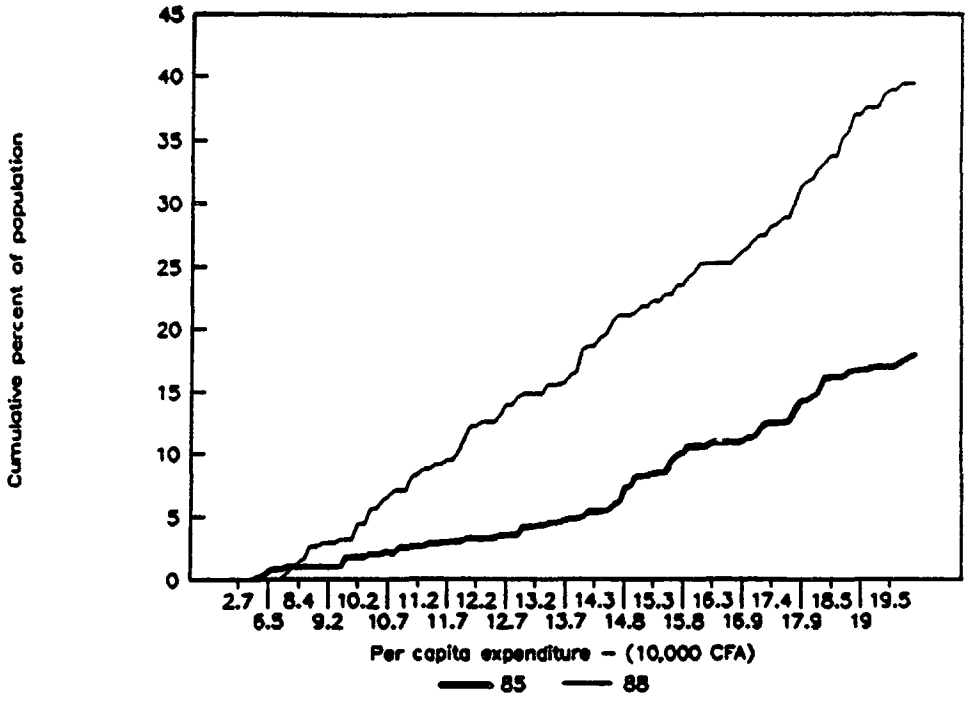
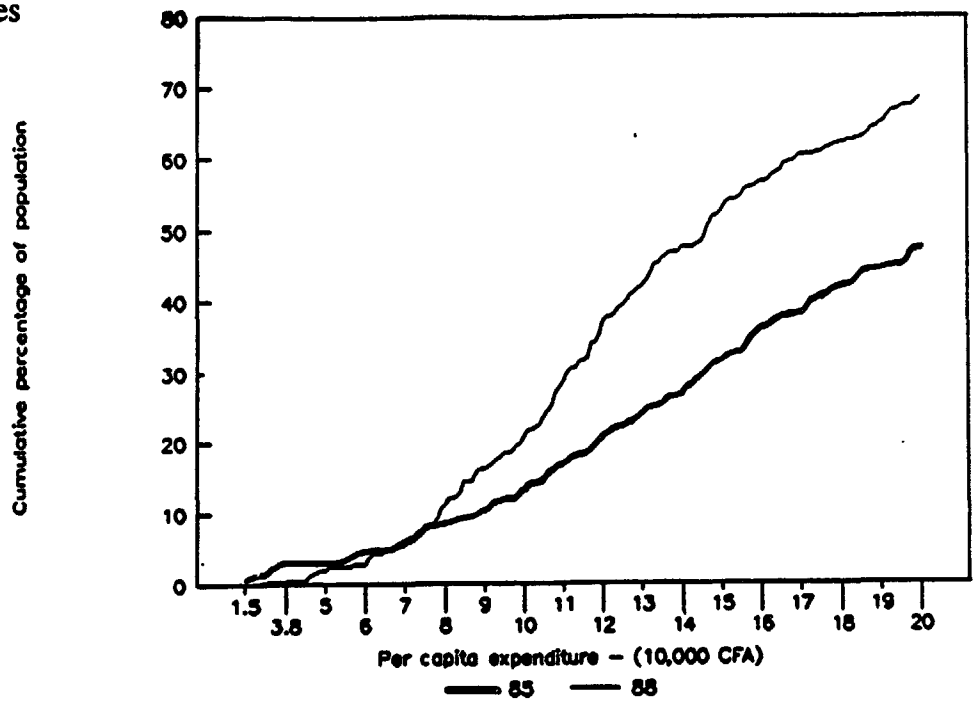


**Figure 2: Cumulative Distribution of Household Expenditure, by Region, 1985-88**

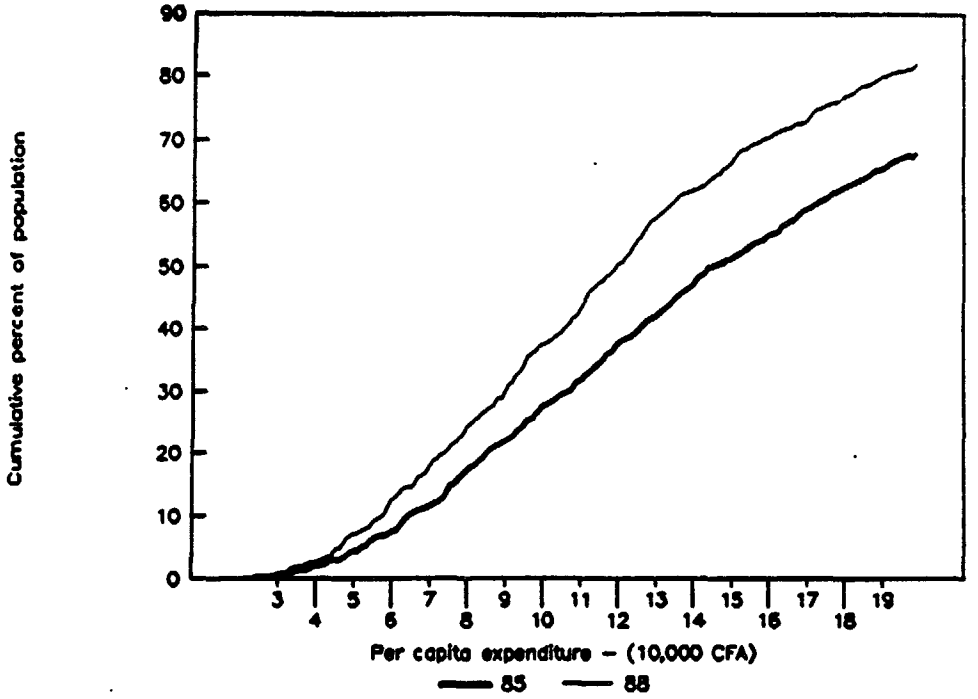
(A) Abidjan




(B) Other Cities



(C) Rural Areas



## 5.6 Decomposition of Changes in Poverty

The changes in poverty which occurred in Côte d'Ivoire between 1985 and 1988 are the net result of two effects: a fall in the mean level of household expenditure per capita and a change in the distribution. It may be useful to separate out the two effects, in order to properly assess the policies of the period and in order to see where future policy needs to be focused.

Following Ravallion and Datt (1991), the change in $P_\alpha$ can be written as the sum of a growth component, a redistribution component and a residual. Let

$$P_{\alpha,t} = P_\alpha (z/M_t, D_t)$$

where z is the poverty line, $M_t$ is mean expenditure per capita and $D_t$ is the distribution of expenditure per capita in year t. The change in $P_\alpha$ between 1985 and 1988 can then be written as

$$P_{\alpha,88} - P_{\alpha,85} = G(85, 88; r) + D(85, 88; r) + R(85, 88; r)$$

| Growth component | Redistribution component | Residual |
|---|---|---|

where r refers to the reference point. If we select the initial year as the (logical) reference point, the components are defined as follows:

$$G(85, 88; 85) \equiv P_\alpha (z/M_{88}, D_{85}) - P_\alpha (z/M_{85}, D_{85})$$
$$D(85, 88; 85) \equiv P_\alpha (z/M_{85}, D_{88}) - P_\alpha (z/M_{85}, D_{85})$$

The growth component thus captures the effect of the changing level of mean expenditure between 1985 and 1988, while maintaining the 1985 distribution. The

## Table 16: Decomposition of Annual Change in Poverty into Growth and Redistribution Components

| | Growth Component | Redistribution Component | Residual | Total Change |
|---|---|---|---|---|
| | | $P_0$ | | |
| 1985-86 | .029 | -.035 | .005 | -.001 |
| 1986-87 | .017 | .024 | .008 | .049 |
| 1987-88 | .151 | -.061 | .021 | .111 |
| 1985-88 | .169 | -.060 | .050 | .159 |
| | | $P_1$ | | |
| 1985-86 | .012 | -.028 | .000 | -.016 |
| 1986-87 | .007 | .011 | .001 | .019 |
| 1987-88 | .065 | -.017 | -.007 | .041 |
| 1985-88 | .079 | -.032 | -.003 | .044 |
| | | $P_2$ | | |
| 1985-86 | .007 | -.019 | -.001 | -.013 |
| 1986-87 | .003 | .007 | .001 | .011 |
| 1987-88 | .033 | -.009 | -.004 | .020 |
| 1985-88 | .044 | -.019 | -.007 | .018 |

## Table 17: Decomposition of Annual Change in Extreme Poverty into Growth and Redistribution Components

| | Growth Component | Redistribution Component | Residual | Total Change |
|---|---|---|---|---|
| | | $P_0$ | | |
| 1985-86 | .020 | -.053 | -.003 | -.036 |
| 1986-87 | .006 | .025 | -.004 | .027 |
| 1987-88 | .077 | -.013 | -.014 | .050 |
| 1985-88 | .102 | -.043 | -.018 | .041 |
| | | $P_1$ | | |
| 1985-86 | .004 | -.017 | -.001 | -.014 |
| 1986-87 | .001 | .007 | .002 | .010 |
| 1987-88 | .021 | -.007 | -.002 | .012 |
| 1985-88 | .033 | -.015 | -.011 | .007 |
| | | $P_2$ | | |
| 1985-86 | .002 | -.008 | -.001 | -.007 |
| 1986-87 | .001 | .003 | .000 | .004 |
| 1987-88 | .009 | -.003 | -.001 | .005 |
| 1985-88 | .016 | -.007 | -.007 | .002 |

redistribution component shows the effect of the changes in distribution between 1985 and 1988, while maintaining mean expenditure at its 1985 value. The residual reflects the interaction between changes in the mean and the distribution.15/

Table 16 shows the breakdown of $P_0$, $P_1$ and $P_2$ between 1985 and 1988, on an annual basis and for the period as a whole. 16/ The most important finding is that the redistribution component is negative. This means that the changes in distribution which occurred in Côte d'Ivoire between 1985 and 1988 contributed to reducing poverty. This also means that the observed increase in poverty over the period is entirely due to the negative growth in expenditure. Had mean household expenditure in Côte d'Ivoire remained the same between 1985 and 1988, poverty incidence would have been reduced by 6 percentage points, i.e., 20 percent (not considering the interaction effect). Moreover, the absolute value of the redistribution component becomes larger relative to the total change as one moves from $P_0$ to $P_2$, which means that the poverty reduction effect stemming from the changes in distribution benefitted the poorest most. The same conclusion is derived from Table 17, pertaining to extreme poverty, except that the relative importance of the redistribution effect is twice as large: had there been no changes in mean expenditures, the change in redistribution would have reduced extreme poverty by over 40 percent. This finding strongly underlines the role of the absence of economic growth in the generation of poverty. What was needed to fight poverty in Côte d'Ivoire in 1988 was not in the first place redistributive policies, but policies which could halt and then reverse the decline in household expenditure.

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15/ The residual exists because the decomposition is sensitive to the choice of reference year. Assuming that initial or terminal year are the two possible choices for reference, the residual will vanish if either mean or distribution do not change between the two years (since in that - unlikely - case the reference does not matter). This can be seen from:

$$R(85, 88; 85) = G(85, 88; 88) - G(85, 88; 85)$$
$$= D(85, 88; 88) - D(85, 88; 85)$$

This also shows that switching between the initial and terminal year as point of reference will reverse the sign but not change the value of the residual.

16/ The year-by-year components do not add up to the all-period components because of the moving reference year.

The year-by-year decomposition shows that the poverty reducing effect of the redistribution component occurred throughout the period, except in 1986-87. We speculate that this may be related to the onset of the recession, following the end of the 1985-86 upturn. This would suggest that the poor and possibly the "middle class" with expenditure levels just above the poverty line were the first to be hit by the recession, so that the expenditure distribution became more unequal.

It is instructive to perform the decomposition also by region and socio-economic group. Tables 18 and 19 show the results for $P_0$ over the entire period 1985-88. For overall poverty, the redistribution component is negative for all regions except Savannah and for all socio-economic groups except households with an unemployed head (a very small category). The relative magnitudes differ a great deal though. In West Forest, the region with the largest increase in $P_0$, virtually the entire effect is due to the fall in the mean — emphasizing again the importance of (the absence of) growth for poverty. In contrast, in Other Cities half the increase in poverty due to falling mean expenditures was offset by the equalizing effect of distributional change. The positive redistribution component in Savannah in the case of poverty, in combination with the negative component in the case of extreme poverty, suggest an increased skewness in the distribution, except at the bottom tail.

The strongest redistribution effect on poverty occurred among export crop farmers — a group were poverty, and especially extreme poverty, increased significantly over the period. This might indicate that the larger and richer farmers were relatively more affected by the negative evolution in export crops, resulting in an equalizing effect. Again though, the drop in mean expenditure far outweighs this effect, resulting in a net increase in poverty. At the same time, very poor farmers were also severely affected, since both falling mean and changing distribution contributed to increasing extreme poverty.

The decomposition of the changes in extreme poverty are of particular use in identifying vulnerable groups, which could be targets for quick intervention by government.

**Table 18: Decomposition of Change in Poverty ($P_0$, 1985-88) into Growth and Redistribution Components, by Region and Socio-Economic Group**

| | Growth Component | Redistribution Component | Residual | Total Change |
|---|---|---|---|---|
| Abidjan | .076 | -.002 | .031 | .105 |
| Other Cities | .213 | -.111 | .072 | .174 |
| East Forest | .046 | -.061 | .030 | .015 |
| West Forest | .355 | -.005 | .025 | .375 |
| Savannah | .146 | .022 | -.018 | .150 |
| Export Crop Farmer | .213 | -.090 | .059 | .182 |
| Food Crop Farmer | .162 | -.037 | .031 | .156 |
| Public Sector Employee | .208 | -.001 | -.043 | .164 |
| Private Formal Sector Employee | .102 | -.040 | .018 | .080 |
| Informal Sector Employee | .306 | -.042 | .016 | .280 |
| Self-Employed | .123 | -.045 | .122 | .200 |
| Inactive | .126 | -.068 | .078 | .136 |
| Unemployed | .114 | .047 | .181 | .342 |
| Côte d'Ivoire | .169 | -.060 | .049 | .158 |

**Table 19: Decomposition of Change in Extreme Poverty ($P_0$, 1985-88) into Growth and Redistribution Components, by Region and Socio-Economic Group**

| | Growth Component | Redistribution Component | Residual | Total Change |
|---|---|---|---|---|
| Abidjan | .003 | -.007 | -.003 | -.007 |
| Other Cities | .101 | -.062 | -.046 | -.007 |
| East Forest | .047 | -.011 | -.029 | .007 |
| West Forest | .127 | .003 | .015 | .145 |
| Savannah | .108 | -.034 | .005 | .079 |
| Export Crop Farmer | .090 | .006 | .028 | .124 |
| Food Crop Farmer | .125 | -.062 | -.016 | .047 |
| Public Sector Employee | .046 | -.003 | -.007 | .036 |
| Private Formal Sector Employee | .008 | -.001 | -.008 | -.001 |
| Informal Sector Employee | .126 | .013 | -.018 | .121 |
| Self-Employed | .079 | -.072 | -.015 | -.008 |
| Inactive | .076 | -.041 | -.026 | .009 |
| Unemployed | .041 | .088 | -.041 | .088 |
| Côte d'Ivoire | .102 | -.043 | -.018 | .041 |

The target groups are not only those with large total increases in extreme poverty, but especially those where the redistribution component is positive — indicating a worsening distribution among the very poor. Those two groups are export crop farmers — the most vulnerable group in rural areas — and the informal sector employees — a notoriously underprivileged group in urban areas. The difference with the self-employed, who also operate in the informal sector, is particularly noteworthy. The distribution among the self-employed became more equal, suggesting that the economic hardships may have equalized opportunities for small entrepreneurs.

## 5.7 Income and Expenditure Patterns

The analysis so far has been concerned with total expenditure, as the measure of welfare. As we saw in section 4, several of the adjustment measures pertained to specific items of expenditure or sources of income. For example, there were measures relating to coffee, cocoa, cotton, rice and maize, as well as to food crops as a whole. Households can be affected by those measures as consumers and/or as producers. It is useful therefore to check the importance of the items in question both in the expenditure of households and as sources of income, and to see whether this differs according to poverty status.

As we have done so far, we want to distinguish the very poor from the poor and the non-poor. However, in order to show better how expenditure and income patterns change with rising welfare levels, the tables in this section will use a different poverty category which excludes the very poor and which is labeled the "mid-poor". We thus have three mutually exclusive poverty categories: the "very poor" are — as before — the people with expenditure per capita below the extreme poverty line; the "mid-poor" are the people between the two poverty lines; and the "non-poor" are above the regular poverty line.

The presentation of expenditure patterns in the following tables will be done in two ways. Part (A) of each table will show the shares of the different categories in total expenditures within each poverty group. These shares sum vertically to 100 percent. This

presentation is useful to see how important an item or a category of expenditure is for each poverty group, and will indicate the extent to which each group may be affected by changes in the price of the item, for example when subsidies are cut. Part (B) of the tables will show how much of aggregate expenditure on a given category is accounted for by each poverty group. These shares sum horizontally to 100 percent. This presentation is useful if one wishes to evaluate the leakage on general subsidies or taxes, or the effect of any general policy which is related to an item or source of revenue, without specifically being targeted to the poor. This dual presentation of expenditure and income information will be maintained throughout this section.

According to Table 20, the mid-poor and the very poor spend over 50 percent of their expenditure on food. For the non-poor, this figure is only a little less — about 47 percent — suggesting that the Engel curve in Côte d'Ivoire is quite flat. This has been observed for other African countries as well (see Boateng et al., n.d.) In 1985, the Engel curve appears to have an inverted U-shape, since the food share for the very poor is lower than that of the mid-poor. This phenomenon might reflect that at very low levels of living non-food necessities such as shelter and clothing, which must be met but are not easily divisible in small quantities, force households to cut back on the easier divisible food purchases. In 1988, the U-pattern seems to have disappeared, but this could be because the larger number of people in the very poor category hides the pattern.

The food-share increased between 1985 and 1988, which reflects of course the declining level of total expenditure over the period. Within the food category, consumption of home-produced food is much more important for the poor, especially the very poor, and its share rose as well between 1985 and 1988. Clearly, as economic conditions worsened, the very poor had to rely to an increasing degree on their own fields to provide them with food.

Table 20: Composition of Household Expenditures by Poverty Category
(%)

| | Very Poor | | Mid-Poor | | Non-Poor | |
|---|---|---|---|---|---|---|
| | 1985 | 1988 | 1985 | 1988 | 1985 | 1988 |
| (A) | | | | | | |
| Food Purchases | 21.9 | 21.7 | 28.6 | 29.4 | 34.4 | 33.2 |
| Consumption of Home-Produced Food | 30.5 | 38.0 | 27.5 | 27.9 | 13.1 | 13.9 |
| (All Food) | (52.4) | (59.7) | (56.1) | (57.3) | (47.5) | (47.1) |
| Non-Food Purchases | 46.5 | 39.5 | 41.3 | 40.7 | 49.0 | 49.2 |
| Consumption of Home-Produced Non-Food | 0.6 | 0.2 | 1.4 | 0.4 | 0.6 | 0.9 |
| (All Non-Food) | (47.1) | (39.7) | (42.7) | (41.1) | (49.6) | (50.1) |
| Remittances | 0.5 | 0.7 | 1.2 | 1.5 | 2.8 | 2.9 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (B) 1/ | | | | | | |
| Food Purchases | 1.6 | 2.8 | 8.4 | 16.9 | 89.9 | 80.3 |
| Consumption of Home-Produced Food | 5.0 | 9.1 | 18.2 | 29.3 | 76.9 | 61.6 |
| Non-Food Purchases | 2.4 | 3.5 | 8.5 | 15.8 | 89.2 | 80.7 |
| Consumption of Home-Produced Non-Food | 2.2 | 1.2 | 19.3 | 10.8 | 78.4 | 88.0 |
| Remittances | 0.5 | 1.1 | 4.8 | 11.0 | 94.7 | 87.9 |
| All Expenditures | 2.5 | 4.2 | 9.9 | 18.3 | 87.6 | 77.5 |

1/ Percentages sum horizontally.

The last row of Table 18 (B) gives an idea of the inequality of the distribution of welfare in Côte d'Ivoire: in 1985, the poorest 10 percent of people accounted for only 2.5 percent of all expenditure, and the poorest 30 percent for 12.4 percent. In 1988, the share of the poor (i.e. very poor and mid-poor) almost doubled to 22.5 percent. The distribution had thus become more equal since the increase in the share exceeds the increase in the number of poor. (This is of course consistent with the decomposition analysis of the previous section which showed a poverty-reducing change in distribution).

Table 21 looks in more detail at the composition of food expenditures and is more useful to assess the potential impact of the item specific measures of the adjustment program. The two most important items on the diet of the very poor and mid-poor are fish and rice, together accounting for about one third of expenditure. There is a clear substitution between fish and meat/poultry as welfare increases. The "luxury" nature of meat is also clear from the decline in its share — for each group — in 1988.

Maize and millet appear to be the two most explicit "inferior" foods, at least in 1985. In 1988, the consumption of these items had fallen among the very poor but increased sharply for the mid-poor — the two groups accounted for 40 percent of all consumption of maize and millet. "Temporary" subsidization of rice production which was started in 1982 had increased rice production and this contributed to a shift in consumption towards rice which is especially notable among the very poor. Looking at Table 21 (B), there do not appear to be any foods which are so heavily consumed by the poor that they could be subsidized without significant leakage. Sugar, salt and bouillon cubes are the only other item for which the budget share for the poor is distinctly higher than for the non-poor, and for which the poor's share in total consumption is well above average.

## Table 21: Composition (%) of Household Food Expenditures by Poverty Category

| | Very Poor | | Mid-Poor | | Non-Poor | |
|---|---|---|---|---|---|---|
| (A) | 1985 | 1988 | 1985 | 1988 | 1985 | 1988 |
| Rice | 11.7 | 19.3 | 12.2 | 16.1 | 10.8 | 11.8 |
| Maize & Millet | 6.4 | 1.9 | 2.5 | 3.1 | 1.5 | 1.1 |
| Cassava | 3.5 | 3.2 | 3.2 | 4.2 | 3.8 | 4.4 |
| Other Grains | 4.4 | 3.6 | 3.5 | 4.5 | 3.9 | 3.6 |
| Bread | 4.0 | 4.6 | 5.4 | 4.8 | 4.6 | 4.8 |
| Yams & Taro | 3.0 | 2.6 | 3.1 | 3.4 | 3.3 | 3.4 |
| Fruit | 2.0 | 2.8 | 4.3 | 3.5 | 4.9 | 5.4 |
| Fish | 23.8 | 22.9 | 22.7 | 18.8 | 14.2 | 15.9 |
| Meat & Poultry | 8.8 | 5.4 | 10.5 | 8.5 | 16.3 | 14.2 |
| Oils | 5.0 | 4.6 | 5.3 | 4.6 | 4.1 | 3.7 |
| Butter & Margarine | 0.0 | 0.0 | 0.1 | 0.0 | 0.7 | 0.4 |
| Sugar | 4.5 | 2.6 | 3.0 | 2.1 | 1.8 | 1.5 |
| Salt | 3.8 | 2.7 | 1.8 | 1.3 | 0.7 | 0.6 |
| Alcoholic Beverages | 3.4 | 3.4 | 5.3 | 4.3 | 4.8 | 3.4 |
| Non-Alcoholic Beverages | 0.8 | 0.3 | 1.3 | 0.4 | 1.8 | 1.1 |
| Bouillon Cube | 4.8 | 5.0 | 3.3 | 3.5 | 1.7 | 2.0 |
| Tomato Paste | 1.4 | 1.2 | 0.8 | 1.1 | 1.1 | 1.1 |
| Vegetables | 1.7 | 4.5 | 2.6 | 4.5 | 4.3 | 4.4 |
| Food Outside Home | 4.7 | 5.6 | 5.8 | 6.9 | 11.8 | 13.0 |
| Other Food | 2.1 | 3.8 | 3.3 | 4.4 | 3.7 | 4.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (B)1/ | | | | | | |
| Rice | 1.6 | 4.2 | 9.3 | 21.5 | 89.0 | 74.3 |
| Maize & Millet | 5.6 | 3.5 | 12.4 | 36.0 | 81.9 | 60.5 |
| Cassava | 1.4 | 2.0 | 7.1 | 16.5 | 91.5 | 81.4 |
| Other Grains | 1.7 | 2.6 | 7.7 | 20.5 | 90.6 | 76.9 |
| Bread | 1.3 | 2.6 | 9.8 | 17.1 | 88.9 | 80.3 |
| Yams & Taro | 1.3 | 2.1 | 7.9 | 17.1 | 90.8 | 80.7 |
| Fruit | 0.6 | 1.5 | 7.6 | 11.8 | 91.8 | 86.6 |
| Fish | 2.4 | 3.8 | 12.6 | 19.4 | 85.0 | 76.9 |
| Meat & Poultry | 0.8 | 1.1 | 5.6 | 11.1 | 93.6 | 87.7 |
| Oils | 1.8 | 3.2 | 10.5 | 19.9 | 87.7 | 76.9 |
| Butter & Margarine | 0.0 | 0.0 | 1.0 | 1.1 | 99.0 | 98.9 |
| Sugar | 3.5 | 4.3 | 12.9 | 21.9 | 83.5 | 73.9 |
| Salt | 6.7 | 9.7 | 17.6 | 28.8 | 75.8 | 61.6 |
| Alcoholic Beverages | 1.1 | 2.7 | 9.3 | 20.6 | 89.6 | 76.8 |
| Non-Alcoholic Beverages | 0.7 | 0.8 | 6.0 | 7.2 | 93.3 | 92.0 |
| Bouillon Cube | 3.8 | 5.6 | 14.6 | 25.8 | 81.7 | 68.4 |
| Tomato Paste | 1.9 | 2.9 | 6.4 | 17.1 | 91.7 | 80.1 |
| Vegetables | 0.6 | 2.8 | 5.4 | 17.3 | 93.9 | 79.9 |
| Food Outside Home | 0.6 | 1.3 | 4.4 | 10.0 | 95.0 | 88.7 |
| Other Food | 0.8 | 2.4 | 7.7 | 17.9 | 91.4 | 79.7 |
| All Food | 1.5 | 2.7 | 8.4 | 17.0 | 90.1 | 80.2 |

1/ Percentages sum horizontally.

Since we observed earlier that the consumption of home-produced food is more important for the poor than for the non-poor, it pays to look in detail at its composition (Table 22). In 1985, rice, maize and yams made up 71 percent of the home-produced consumption of the very poor. In 1988, the share of rice had more than doubled while that of yams was more than halved. The Government's support for food production under the SALs and the subsidization of rice thus benefitted the poor as producers (a benefit in-kind in the case of home-produced consumption). Although it is an item of relatively little importance in the total diet, millet is the item most heavily produced for home consumption by the poor. In 1985, the poor accounted for 44 percent of all home-produced consumption of millet and in 1988, the figure was 70 percent.

The results so far make it clear that the economic hardship of 1987-88 has induced major consumption shifts, both in purchased and home-produced items, and both among the poor and non-poor, towards less desired foods. The non-poor consumed more fish and less meat and poultry. The poor consumed more maize and millet. The subsidy on rice has undoubtedly contributed to a major shift in purchased and home-produced consumption towards rice. (This shows the risk of this type of subsidy, since the increased production and consumption makes the cost of the subsidy to the Government much larger and leads to rising pressure to maintain it since the number of beneficiaries increases.)

Lastly, we take a look at non-food items (Table 23). The budget share of most of these items rises with total expenditure, but the interesting items are the exceptions. One such exception is public transport, the share of which is roughly the same across the three poverty groups — the expectation usually is that it is lower for the non-poor. Also, the share of each poverty group in total public transport expenditures is the same as its share in all non-food expenditure. Public transport in Côte d'Ivoire, as in almost all developing countries, is heavily subsidized. Clearly this is a subsidy which does not primarily benefit the poor. However, we would like to use this example to illustrate a general point. The observation that a subsidy is not progressive does not imply that abolishing it would not hurt

## Table 22: Composition of Consumption of Home-Produced Food by Poverty Category
(%)

| | Very Poor | | Mid-Poor | | Non-Poor | |
|---|---|---|---|---|---|---|
| | 1985 | 1988 | 1985 | 1988 | 1985 | 1988 |
| (A) | | | | | | |
| Rice | 12.6 | 32.9 | 15.3 | 24.9 | 24.5 | 18.1 |
| Maize | 19.5 | 19.9 | 16.2 | 8.5 | 11.3 | 6.0 |
| Millet | 4.3 | 4.0 | 3.2 | 1.4 | 1.3 | 0.5 |
| Cassava | 7.5 | 10.1 | 12.8 | 11.7 | 15.9 | 10.5 |
| Yam | 39.4 | 16.5 | 30.4 | 37.9 | 26.0 | 47.0 |
| Banana | 3.7 | 5.0 | 13.2 | 9.3 | 12.0 | 11.7 |
| Taro | 3.6 | 1.6 | 3.3 | 1.6 | 4.5 | 2.4 |
| Other Grains | 9.5 | 9.9 | 5.6 | 4.6 | 5.0 | 3.8 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (B) 1/ | | | | | | |
| Rice | 2.7 | 13.1 | 12.5 | 34.3 | 84.7 | 52.6 |
| Maize | 7.5 | 21.5 | 23.5 | 31.6 | 68.9 | 46.9 |
| Millet | 11.7 | 32.1 | 32.5 | 38.2 | 55.8 | 29.7 |
| Cassava | 2.4 | 7.9 | 15.6 | 32.0 | 81.9 | 60.1 |
| Yam | 7.0 | 3.4 | 20.2 | 26.8 | 72.8 | 69.9 |
| Banana | 1.5 | 4.1 | 20.4 | 26.4 | 78.1 | 69.5 |
| Taro | 4.0 | 6.6 | 14.3 | 23.0 | 81.7 | 70.4 |
| Other Grains | 9.2 | 18.6 | 20.4 | 29.8 | 70.4 | 51.6 |
| All Home-Produced Food | 4.9 | 8.5 | 18.2 | 29.4 | 76.9 | 62.0 |

1/ Percentages sum horizontally.

## Table 23: Composition of Non-Food Expenditures by Poverty Category
(%)

| | Very Poor | | Mid-Poor | | Non-Poor | |
|---|---|---|---|---|---|---|
| | 1985 | 1988 | 1985 | 1988 | 1985 | 1988 |
| (A) | | | | | | |
| Clothing | 14.8 | 14.4 | 30.5 | 25.0 | 27.9 | 19.2 |
| Personal Care | 13.0 | 14.9 | 8.2 | 10.3 | 6.1 | 9.5 |
| Home Products & Furniture | 2.4 | 1.8 | 4.0 | 2.9 | 9.4 | 5.0 |
| Charcoal | 0.6 | 0.4 | 0.7 | 2.7 | 2.3 | 3.8 |
| Wood | 0.8 | 1.0 | 1.2 | 2.3 | 1.3 | 1.0 |
| Fuel (kitchen) | 11.3 | 14.5 | 6.4 | 7.2 | 3.3 | 4.3 |
| Fuel (car) | 7.6 | 3.6 | 3.8 | 1.6 | 8.2 | 9.6 |
| Car Repair | 5.9 | 3.5 | 2.8 | 2.2 | 3.1 | 2.5 |
| Education | 19.2 | 14.1 | 12.5 | 14.4 | 9.6 | 11.7 |
| Health | 5.9 | 6.2 | 10.2 | 9.8 | 8.8 | 9.9 |
| Cigarettes | 7.3 | 8.1 | 5.8 | 5.4 | 3.0 | 3.4 |
| Public Transport | 9.8 | 15.9 | 12.1 | 13.9 | 11.6 | 14.1 |
| Communications | 0.0 | 0.0 | 0.1 | 0.0 | 0.7 | 0.6 |
| Other | 1.2 | 1.4 | 1.5 | 2.3 | 4.7 | 5.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (B)1/ | | | | | | |
| Clothing | 0.7 | 2.0 | 8.1 | 20.3 | 91.2 | 77.7 |
| Personal Care | 2.7 | 4.1 | 9.5 | 17.0 | 87.8 | 78.9 |
| Home Products & Furniture | 0.4 | 1.1 | 3.3 | 10.4 | 96.3 | 88.5 |
| Charcoal | 0.4 | 0.3 | 2.3 | 12.4 | 97.3 | 87.3 |
| Wood | 0.8 | 2.2 | 7.2 | 29.6 | 91.9 | 68.2 |
| Fuel (kitchen) | 4.1 | 7.8 | 12.9 | 23.1 | 82.9 | 69.0 |
| Fuel (car) | 1.3 | 1.2 | 3.6 | 3.2 | 95.1 | 95.5 |
| Car Repair | 2.6 | 3.9 | 6.7 | 14.7 | 90.7 | 81.4 |
| Education | 2.6 | 3.1 | 9.3 | 19.1 | 88.1 | 77.7 |
| Health | 0.9 | 1.7 | 8.5 | 16.2 | 90.6 | 82.1 |
| Cigarettes | 3.0 | 5.7 | 13.1 | 22.5 | 83.8 | 71.7 |
| Public Transport | 1.1 | 3.1 | 7.7 | 15.9 | 91.2 | 81.0 |
| Communications | 0.0 | 0.0 | 1.7 | 0.0 | 98.3 | 100.0 |
| Other | 0.4 | 0.8 | 2.5 | 7.9 | 97.1 | 91.3 |
| All Non-Food | 1.3 | 2.7 | 7.4 | 16.2 | 91.2 | 81.1 |

1/ Percentages sum horizontally.

the poor relatively more. Average propensities (such as those reported in Table 23) may well differ significantly from marginal effects. The rich may have alternatives to public transport which the poor do not, which means that the price elasticity of public transport fares may be very low for the poor. If so, raising fares might significantly increase the budget share which the poor have to devote to transport, forcing them to cut back on more price elastic items such as health care and education. A study of cross-price elasticities is outside the scope of this paper, but it should be undertaken before recommending changes on subsidies and indirect taxes.

There are three categories of non-food items of which the budget share declines sharply with rising welfare: personal care, kitchen fuel, and education. In the case of the first two, this reflects the low elasticity of demand for these necessities. The high share of education for the very poor (18% in 1986, 14% in 1988) is remarkable and suggests that very poor households do "tighten the belt" in order to send their children to school. The shares of these three categories are much lower for the mid-poor, while there is a matching rise in the share of clothing — indicating just where the very poor tighten the belt (at least within the non-food items). It is a sad note though that the very poor spend more on cigarettes than on health. The fact that only 1 percent of all health expenditures comes from the very poor provides of course no case for eliminating the subsidies on health care but rather for targeting them.

One general aim of adjustment programs is to change the resource allocation in the economy between tradeable and non-tradeable goods and services, in the direction of promoting exportables and import-substitutes (World Bank, 1990). This is usually done through a devaluation of the exchange rate. Since Côte d'Ivoire is a member of the CFAF-zone, this tool was not available, and the SALs included a series of substitute measures (mainly import tariffs and export subsidies) aimed at producing the same effects. In order to estimate the impact on household expenditure, we categorized all expenditure items into a tradeable and non-tradeable category. All services, foods consumed away from the home, and some obviously local items such as wood and charcoal were considered as non-

tradeables. Food was also considered as non-tradeable, except for rice, maize, millet, macaroni, meat, refined oil, butter, margarine, salt, alcoholic beverages, and the "other foods" category in the survey.

Table 24 shows that in 1985 slightly more than 40 percent of the expenditures of the mid-poor and non-poor were tradeables. Two thirds of this is accounted for by non-food items. In 1988, the share of tradeables had fallen to 35 percent, mainly through cuts in imported non-food items, suggesting that the import tariffs may have had an effect. For the very poor, the tradeable component was initially lower at 35.6 percent, but it rose to 38.8 percent in 1988. Here the increase was mainly due to food items, i.e. import substitutes, especially rice. We expected that there might be strong regional effects, and repeated the tradeable/non-tradeable breakdown of expenditure by region (Table 25). The drop in the share of tradeable items affected the rural areas most. The non-food component was cut back the most in the two Forest zones. The rise in the food component which we observed for the very poor was concentrated in West Forest (where the increase in extreme poverty was strongest). The absence of an effect in Savannah where there are also many very poor people is due to the lower availability (and absence of production) of rice.

In short, although the overall share of tradeable items in total expenditure is not very different across poverty categories, the impact of adjustment measures aimed at mimicking devaluation did affect the very poor differently from the other groups. There were very distinct regional effects as well.

Adjustment measures do not only affect households and individuals through expenditures, but also — and perhaps mainly so — through income. Although the welfare analysis in this paper is based on expenditure, we shall now take a brief look at the composition of income of the different poverty groups. 17/ There were indeed several

17/ Johnson et al. (1990) describe how total household income was derived from the CILSS data.

## Table 24: Composition of Household Expenditure according to Poverty Status and Tradeability of Items

(%)

| | Very Poor | | Mid-Poor | | Non-Poor | |
|---|---|---|---|---|---|---|
| | 1985 | 1988 | 1985 | 1988 | 1985 | 1988 |
| (A) | | | | | | |
| Tradeable | 35.6 | 38.8 | 42.6 | 35.4 | 41.1 | 35.0 |
| - food | 16.5 | 25.5 | 14.3 | 18.5 | 13.8 | 13.7 |
| - non-food | 19.1 | 13.3 | 28.3 | 16.9 | 27.3 | 21.3 |
| Non-Tradeable | 64.4 | 61.2 | 57.4 | 64.6 | 58.9 | 65.0 |
| - food | 34.5 | 35.9 | 31.6 | 37.7 | 26.2 | 32.5 |
| - non-food | 29.9 | 25.3 | 25.8 | 26.9 | 32.7 | 32.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (B) 1/ | | | | | | |
| Tradeable | | | | | | |
| - food | 2.4 | 6.6 | 10.5 | 22.8 | 87.1 | 70.6 |
| - non-food | 1.4 | 2.6 | 10.5 | 15.4 | 88.1 | 82.0 |
| Non-Tradeable | | | | | | |
| - food | 2.6 | 4.2 | 11.9 | 20.7 | 85.5 | 75.1 |
| - non-food | 1.9 | 3.2 | 8.2 | 15.9 | 89.9 | 80.9 |
| All | 2.1 | 3.9 | 10.1 | 18.4 | 87.8 | 77.6 |

1/ Percentages sum horizontally.

## Table 25: Composition of Household Expenditures according to Region and Tradeability of Items

(%)

| | Abidjan | | Other Cities | | East Forest | | West Forest | | Savannah | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 85 | 88 | 85 | 88 | 85 | 88 | 85 | 88 | 85 | 88 |
| (A) | | | | | | | | | | |
| Tradeable | 36.6 | 32.8 | 40.7 | 39.1 | 42.4 | 29.5 | 48.2 | 42.6 | 41.3 | 33.5 |
| - food | 11.9 | 11.8 | 11.8 | 14.2 | 10.9 | 12.3 | 18.1 | 27.1 | 22.5 | 17.2 |
| - non-food | 24.7 | 21.0 | 28.9 | 24.9 | 31.5 | 17.2 | 30.1 | 15.5 | 18.8 | 16.3 |
| Non-Tradeable | 63.6 | 67.2 | 59.3 | 60.9 | 57.6 | 70.5 | 51.8 | 57.3 | 58.8 | 66.5 |
| - food | 22.3 | 24.2 | 21.5 | 28.2 | 32.6 | 48.5 | 28.4 | 32.7 | 39.2 | 45.5 |
| - non-food | 41.0 | 43.0 | 37.8 | 32.7 | 25.0 | 22.0 | 23.4 | 24.6 | 19.6 | 21.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (B) 1/ | | | | | | | | | | |
| Tradeable | | | | | | | | | | |
| - food | 25.4 | 21.8 | 20.3 | 27.8 | 14.6 | 14.8 | 22.0 | 20.1 | 17.7 | 15.4 |
| - non-food | 26.8 | 29.0 | 25.5 | 36.2 | 21.5 | 15.3 | 18.7 | 8.5 | 7.5 | 10.9 |
| Non-Tradeable | | | | | | | | | | |
| - food | 24.6 | 20.2 | 19.1 | 24.7 | 22.6 | 26.0 | 17.8 | 10.8 | 15.9 | 18.3 |
| - non-food | 38.0 | 38.5 | 28.4 | 30.9 | 14.6 | 12.7 | 12.4 | 8.8 | 6.7 | 9.1 |
| All | 29.6 | 27.9 | 24.0 | 29.4 | 18.6 | 18.0 | 16.9 | 11.1 | 10.9 | 13.5 |

1/ Percentages sum horizontally.

SAL measures which operated on the income side: the freeze of public sector wages, and the increase in export crop prices which increase directly farmers' income. By the same token, the 1987-88 recession will not only have affected household expenditure, but income as well. The question is which groups were affected most? Table 26 shows that the very poor derive the bulk of their income from farming: 56 percent in 1985 and 62 percent in 1988. Non-farming income was only 16.6 percent in 1985 and fell slightly thereafter. This is an important difference with the mid-poor where the importance of farm income declined and that of non-farm income rose significantly. No doubt this reflects the characteristics of the people who became newly poor between 1985 and 1988, many of whom were not farmers (see earlier). Wage income, in contrast, is clearly the income source of the non-poor: in 1985, 97 percent of all wage income went to the non-poor. Any form of wage-policy will thus not affect the poor initially, although, as we have seen in the case of public sector employees, it can push people into poverty. Noteworthy is also that remittance income became more important between 1985 and 1988 — for all groups. This reflects the existence in Côte d'Ivoire of a strong system of informal mutual support among extended family members and people from the same village (see Mahieu, 1990).

Given the importance of farming income for the poor, we look in Table 27 at the composition of farm revenue from crop sales (the CILSS data do not permit to calculate net income on a crop-specific basis). Among the three main export crops, cotton clearly provides the most revenue for the poorest farmers — increasingly so between 1985 and 1988. The simultaneous increase of the prices of cotton and cotton fertilizer under SAL II and the stimulation program for cotton production in Savannah thus yielded a net gain for very poor farmers. The benefit from the support of the coffee and cocoa prices on the other hand went mostly to non-poor farmers, since revenues from these two crops constituted about three-fourths of their crop revenues. The figures also show that between 1985 and 1988, there was a shift away from coffee in favor of cocoa, in response to international market conditions. Among food crops, rice is a relatively more important source of revenue for

## Table 26: Composition of Household Income by Poverty Category
(%)

| | Very Poor | | Mid-Poor | | Non-Poor | |
|---|---|---|---|---|---|---|
| | 1985 | 1988 | 1985 | 1988 | 1985 | 1988 |
| (A) | | | | | | |
| Wages | 3.6 | 3.1 | 7.1 | 11.3 | 36.7 | 40.6 |
| Farm Income | 56.3 | 61.8 | 59.4 | 43.5 | 32.5 | 25.5 |
| Non-Farm Income | 16.6 | 15.2 | 18.9 | 31.3 | 16.0 | 24.7 |
| Rental Income | 21.2 | 16.0 | 11.3 | 11.1 | 9.7 | 7.3 |
| Scholarships | 0.4 | 0.1 | 0.6 | 0.2 | 0.6 | 0.2 |
| Remittances | 1.4 | 3.7 | 0.9 | 2.4 | 1.0 | 1.4 |
| Other Income | 0.5 | 0.1 | 1.8 | 0.2 | 3.5 | 0.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (B) 1/ | | | | | | |
| Wages | 0.4 | 0.5 | 2.6 | 7.3 | 97.1 | 92.2 |
| Farm Income | 5.0 | 9.6 | 18.9 | 29.5 | 76.0 | 60.8 |
| Non-Farm Income | 3.3 | 2.9 | 13.4 | 25.7 | 83.3 | 71.4 |
| Rental Income | 6.8 | 9.1 | 12.8 | 27.5 | 80.5 | 63.4 |
| Scholarships | 2.3 | 1.9 | 11.4 | 25.1 | 86.4 | 73.1 |
| Remittances | 4.6 | 10.4 | 10.7 | 29.4 | 84.7 | 60.3 |
| Other Income | 0.5 | 2.1 | 6.5 | 15.1 | 92.9 | 82.8 |
| All Income | 6.8 | 9.1 | 12.8 | 27.5 | 80.5 | 63.4 |

1/ Percentages sum horizontally.

## Table 27: Composition of Revenue from Crop Sales by Poverty Category
(%)

| | Very Poor | | Mid-Poor | | Non-Poor | |
|---|---|---|---|---|---|---|
| | 1985 | 1988 | 1985 | 1988 | 1985 | 1988 |
| (A) | | | | | | |
| Cocoa | 23.6 | 31.9 | 42.6 | 47.7 | 43.2 | 52.8 |
| Coffee | 24.7 | 17.6 | 24.3 | 20.8 | 31.8 | 22.0 |
| Cotton | 25.0 | 33.1 | 10.9 | 12.2 | 3.3 | 8.2 |
| Rubber & Palm | 0.0 | 0.1 | 1.7 | 1.0 | 2.3 | 1.7 |
| Other Export Crops | 11.5 | 5.7 | 5.5 | 3.9 | 5.5 | 3.2 |
| Rice | 5.1 | 5.4 | 3.3 | 4.5 | 3.0 | 3.2 |
| Millet | 0.1 | 0.8 | 0.2 | 0.2 | 0.1 | 0.3 |
| Maize | 1.4 | 3.1 | 2.7 | 1.8 | 2.0 | 1.4 |
| Banana & Fruit Trees | 2.9 | 0.1 | 1.7 | 0.6 | 2.7 | 0.3 |
| Root Crops | 5.1 | 1.9 | 5.9 | 6.4 | 4.7 | 5.5 |
| Vegetables | 0.5 | 0.4 | 1.1 | 0.9 | 1.2 | 1.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| (B) 1/ | | | | | | |
| Cocoa | 2.8 | 6.9 | 19.1 | 26.9 | 78.0 | 66.2 |
| Coffee | 4.2 | 8.8 | 15.3 | 27.1 | 80.5 | 64.0 |
| Cotton | 21.5 | 29.3 | 35.2 | 28.1 | 43.3 | 42.5 |
| Rubber & Palm | 0.1 | 0.5 | 15.8 | 21.7 | 84.0 | 77.8 |
| Other Export Crops | 10.1 | 16.3 | 18.0 | 29.7 | 71.9 | 54.0 |
| Rice | 8.1 | 15.1 | 19.7 | 32.9 | 72.3 | 52.0 |
| Millet | 4.0 | 25.0 | 23.0 | 17.2 | 72.9 | 57.8 |
| Maize | 3.4 | 19.4 | 23.6 | 28.8 | 73.0 | 51.9 |
| Banana & Fruit Trees | 5.7 | 2.3 | 13.0 | 40.9 | 81.2 | 56.8 |
| Root Crops | 5.2 | 3.7 | 22.4 | 33.2 | 72.5 | 63.1 |
| Vegetables | 2.0 | 4.2 | 17.6 | 22.8 | 80.4 | 73.0 |
| All Crops | 5.0 | 10.6 | 18.9 | 27.7 | 76.1 | 61.7 |

1/ Percentages sum horizontally.

poor farmers than for non-poor, and its importance has been increasing. The rice price support measures have thus helped poor farmers (although, again, with much leakage, given that 72 percent of all rice sale revenues went to non-poor farmers in 1985).

A final point on the income figures in Tables 26 and 27 is a word of caution. As we pointed out in section 3, there are good reasons for preferring to base welfare and poverty analysis on expenditure data rather than income data — not the least of which is reliability in reporting. The bottom row of Table 26 shows the distribution of total household income. According to this, very poor households in 1985 obtained 6.8 percent of all incomes, and the mid-poor had 12.8 percent. The poorest 30 percent of households thus received 19.4 percent of incomes — as opposed to only 12.4 percent of expenditure (see Table 20). This would imply a remarkably equal distribution of income against a rather unequal distribution of expenditure. A further look at the absolute income figures also reveals that on average they are well below expenditure figures, resulting in average negative savings. This is not an unusual finding in surveys which collect both income and expenditure, and it is generally believed that the phenomenon is due to under-reporting of income especially by high income earners. This does indeed seem to be the case in the CILSS as well since the negative savings rate increases with the level of total income. We are thus inclined to have more confidence in expenditure than income figures. Among the latter we trust more the income composition figures for the very poor and mid-poor than those for the non-poor, since for the former income and expenditure figures are more consistent.

## 6. Basic Needs and Poverty

Since welfare and poverty have multiple dimensions (see section 3), it is time now to turn to those aspects which have not been captured in the welfare measure — household expenditure per capita — which we have used so far. The discussion here is limited to three key "basic needs" dimensions: education, health and housing. Only the latter has been directly affected by the structural adjustment program, through the Government's withdrawal from the provision of housing. We shall explore whether this has impacted on the poor.

The fulfillment of other basic needs will of course have been affected indirectly, both by the restraint in overall government expenditure imposed by the adjustment program and by the shortfall of government receipts during the subsequent recession years (although in 1988 government expenditures were allowed to rise rapidly in spite of the lower receipts).

In general, the Government of Côte d'Ivoire has well protected public expenditure on education and health from the macro-economic evolution during 1985-88 (Table 28). In real terms, expenditure on both education and health rose in the aggregate, and stayed at about the same level on a per capita basis. The share of the Government's budget devoted to education actually increased from 42.3% to 44.7%. This share represents one of the highest in the world. Health share in the budget rose from 7.0% to 7.3%. This protection of social expenditure both during adjustment and during economic recession is not unusual in African countries. Ferroni and Kanbur (1990) review the available data for African countries during the eighties and conclude that there is no evidence of a decline in real government resources devoted to the social sectors.

However, sector-wide figures on public expenditure are only a weak guide to judge whether such expenditures have been beneficial for the poor. Much depends on the specific intra-sectoral allocation, the efficiency and targeting of service delivery, etc. Such a detailed review of public expenditure is outside the scope of this paper, but we do show in Table 28 the breakdown of education expenditure according to type of education. It is usually assumed that primary education benefits the poor most, while tertiary education benefits the rich most. The share going to primary education was just over 40% in 1985 and did not change much until 1987. A slight rising trend appears to set in as of 1988. This is compensated by a slight reduction of the share going to secondary education. Tertiary education holds steady over the period at about 17%. Considering that tertiary enrollment is a minute fraction of primary enrollment, it is clear that the amount of government spending per tertiary student is a high multiple of that per primary student. There is thus clearly room for further reallocation within the education sector.

Table 28: Government Expenditure (billions of CFAF) on Education and Health

| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|
| **Education** | 177.0 | 200.6 | 211.0 | 220.4 | 221.1 | 208.4 |
| (% of GDP) | (5.6) | (6.2) | (6.8) | (7.2) | (7.5) | (7.7) |
| (% of current expenditure) | (20.6) | (22.7) | (22.7) | (20.2) | (20.0) | (23.0) |
| (% of government budget) | (42.3) | (43.7) | (43.9) | (44.7) | (45.8) | (41.8) |
| (CFAF per person) | (18830) | (20680) | (20891) | (20990) | (20472) | (18607) |
| Primary | 72.2 | 82.3 | 86.0 | 92.3 | 93.4 | 95.8 |
| (% of education expenditure) | (40.8) | (41.0) | (40.8) | (41.9) | (42.2) | (46.0) |
| Secondary | 61.3 | 62.9 | 66.0 | 69.2 | 68.3 | 60.0 |
| (% of education expenditure) | (34.6) | (31.3) | (31.3) | (31.4) | (30.9) | (28.8) |
| Tertiary | 30.8 | 36.0 | 37.0 | 38.1 | 38.5 | 28.6 |
| (% of education expenditure) | (17.4) | (17.9) | (17.6) | (17.3) | (17.4) | (13.7) |
| Technical/Vocational | 12.9 | 19.5 | 22.0 | 20.8 | 20.9 | 24.0 |
| (% of education expenditure) | (7.3) | (9.7) | (10.4) | (9.4) | (9.5) | (11.5) |
| **Health** | 29.1 | 31.5 | 33.7 | 36.2 | 38.5 | 38.9 |
| (% of GDP) | (0.9) | (1.0) | (1.1) | (1.2) | (1.3) | (1.4) |
| (% of current expenditure) | (3.4) | (3.6) | (3.6) | (3.3) | (3.5) | (4.3) |
| (% of government budget) | (7.0) | (6.9) | (7.0) | (7.3) | (8.0) | (7.8) |
| (CFAF per person) | (3096) | (3247) | (3336) | (3448) | (3565) | (3473) |

Source: World Bank Statistics

Within the health sector, the key distinction is generally between curative and preventive care, with the former often displaying an urban and pro-rich bias. Unfortunately, the data do not permit to allocate public expenditure in Côte d'Ivoire to each of these types of health care.

With the information on public expenditure as background, we now take a look at how the non-monetary aspects of welfare have evolved between 1985-88 (keeping in mind of course that this evolution is the result of many factors besides public expenditure).

## 6.1 Education

As can be expected the literacy level has not changed much between 1985 and 1988 and is quite low for a country which spends such a high share of its government budget on education (Table 29A). Nevertheless, slight improvements did occur for the non-poor and the mid-poor, while a distinct deterioration occurred for the very poor (perhaps surprisingly, only among men). Under the assumption that it is not possible to "lose" literacy once it has been acquired, this must reflect shifts across poverty categories over time whereby the least literate and educated have become poorer. The regional figures highlight the sharp differences in literacy between urban and rural areas. The literacy rate in Savannah, Côte d'Ivoire's poorest region where 30 percent of the people live in extreme poverty, is a paltry 10 percent.

Literacy is of course the result of past educational efforts. Current efforts are best captured by enrollment rates. Perhaps the most sensitive among these is the net primary school enrollment rate — the number of primary-school-age children (6-11 years) enrolled in primary school as a percentage of all 6-11 year olds. This ratio is sensitive to economic conditions because it reflects parents' withdrawal of children from school in order to work in household enterprises or farms. This can be a permanent withdrawal, i.e. drop-out, or a temporary withdrawal during part of the school year, which is likely to lead to increased repetition of grades. The net enrollment rate picks up both effects (as a decline in the rate). In contrast, the more frequently reported gross enrollment rate — the number of children of all ages enrolled in primary school as a percentage of 6-11 year olds — will only decline when drop-outs occur. It will actually rise when repetition increases because this leads to a larger total primary school enrollment, which is the rate's numerator. The gross enrollment rate could thus mask an important element of deteriorating educational conditions.

However, for completeness' sake, we report in Table 29 both net and gross enrollment rates, for primary and secondary school. For Côte d'Ivoire at large net primary school enrollment rose slightly until 1987 (58.4%) and then fell four points in 1988, which

brought it back to its 1985 level (Table 29B). However, this end-result was not the same for all groups and places in the country. Enrollment of children in non-poor households was actually higher in 1988 than in 1985. In contrast, a significant drop occurred for girls of very poor households whose enrollment fell to 16.7 percent — one third of the national figure — and in the Savannah where enrollment stood at 22.6 percent in 1988. Clearly, the substantial resources which the Ivorian Government devotes to education, do not have an equitable distribution. It is hard to see how the fate of the very poor in Côte d'Ivoire can be improved as long as their access to schooling remains this dismal. On the positive side, the situation in West Forest deserves special mention: net primary enrollment rose over the period from 50.6 percent to 58.8 percent. This illustrates the importance of looking separately at basic needs indicators, which do not always follow the same time-path (or, for that matter, have the same cross-sectional distribution) as monetary indicators. Indeed, it will be recalled from the previous section that West Forest was the region with the greatest fall in average expenditure and commensurately the greatest rise in poverty.

The gross primary school enrollment rate rose slightly between 1985 and 1988, which probably just reflects increased repetition of primary grades. This problem is evident from Côte d'Ivoire's official school records, but the CILSS data do not permit the calculation of repetition rates. However, we can take an indirect look at repetition, by checking the incidence of age-grade mismatches. Table 29D shows that in 1985 almost one third of primary school pupils were at least one grade behind the one normally associated with their age. While in 1985 the percentage of mismatches was about the same for poor and non-poor, by 1988 the percentage for the poor exceeded that of the non-poor by a substantial margin. For children in very poor households, the incidence of age-grade mismatch almost doubled between 1985 and 1988, to a level of 64% for boys and 53% for girls. This is an alarming trend which indicates a slow-down in educational progress for very poor children.

## Table 29: Education Indicators

| | | 1985 | 1986 | 1987 | 1988 |
|---|---|---|---|---|---|
| | | **(A) Literacy (%)** | | | |
| Very poor | - male | 22.8 | 19.9 | 18.2 | 16.8 |
| | - female | 8.0 | 7.3 | 7.4 | 8.3 |
| Mid-Poor | - male | 26.7 | 31.3 | 26.3 | 32.9 |
| | - female | 12.9 | 15.5 | 10.9 | 17.1 |
| Non-poor | - male | 45.1 | 45.1 | 49.8 | 49.7 |
| | - female | 28.0 | 27.7 | 31.2 | 31.8 |
| Abidjan | | 55.0 | 53.1 | 59.5 | 57.6 |
| Other Cities | | 45.7 | 45.5 | 45.1 | 45.2 |
| East Forest | | 21.3 | 24.2 | 24.4 | 23.4 |
| West Forest | | 20.1 | 20.6 | 21.1 | 28.1 |
| Savannah | | 9.9 | 10.7 | 12.0 | 9.8 |
| Côte d'Ivoire | | 30.9 | 31.9 | 32.4 | 31.9 |
| | | **(B) Net Primary School Enrollment Rate** | | | |
| Very poor | - male | 31.7 | 35.6 | 34.1 | 31.0 |
| | - female | 22.4 | 22.9 | 16.7 | 16.7 |
| Mid-Poor | - male | 51.1 | 49.3 | 48.2 | 54.3 |
| | - female | 41.0 | 37.6 | 36.7 | 41.9 |
| Non-poor | - male | 66.3 | 64.2 | 78.0 | 74.1 |
| | - female | 54.0 | 57.5 | 63.9 | 57.7 |
| Abidjan | | 69.4 | 71.4 | 77.7 | 72.0 |
| Other Cities | | 67.7 | 62.4 | 71.2 | 67.4 |
| East Forest | | 54.3 | 56.8 | 60.2 | 53.6 |
| West Forest | | 50.6 | 48.9 | 58.1 | 58.8 |
| Savannah | | 27.8 | 26.1 | 30.3 | 22.6 |
| Côte d'Ivoire | | 53.6 | 54.1 | 58.4 | 54.0 |

**(C) Gross Primary School Enrollment Rate**

| | | | | | |
|---|---|---|---|---|---|
| Very poor | - male | 50.5 | 50.7 | 41.8 | 48.0 |
| | - female | 30.2 | 28.8 | 26.1 | 22.1 |
| Mid-Poor | - male | 69.2 | 69.4 | 65.8 | 76.0 |
| | - female | 53.8 | 47.4 | 46.4 | 57.7 |
| Non-poor | - male | 87.0 | 88.3 | 107.8 | 100.4 |
| | - female | 73.8 | 78.8 | 84.5 | 80.1 |
| All | | 72.2 | 73.9 | 78.7 | 74.7 |

**(D) Age-Grade Mismatches in Primary School (as % of total enrollment)**

| | | | | | |
|---|---|---|---|---|---|
| Very poor | - male | 38.0 | 34.1 | 37.6 | 63.9 |
| | - female | 27.8 | 55.3 | 58.6 | 52.9 |
| Mid-Poor | - male | 30.1 | 42.1 | 41.7 | 48.7 |
| | - female | 27.4 | 40.4 | 38.1 | 47.9 |
| Non-poor | - male | 28.5 | 34.9 | 31.1 | 37.3 |
| | - female | 33.3 | 35.3 | 30.0 | 37.7 |
| All | | 30.6 | 36.7 | 33.2 | 42.4 |

**(E) Net Secondary School Enrollment Rate**

| | | | | | |
|---|---|---|---|---|---|
| Very poor | - male | 9.7 | 3.0 | 2.8 | 3.5 |
| | - female | 5.3 | 2.0 | 4.5 | 1.2 |
| Mid-Poor | - male | 20.0 | 16.3 | 11.5 | 14.8 |
| | - female | 9.8 | 5.2 | 4.1 | 9.0 |
| Non-poor | - male | 36.8 | 37.6 | 36.8 | 33.6 |
| | - female | 18.8 | 25.6 | 22.9 | 21.1 |
| All | | 22.9 | 25.2 | 22.3 | 19.1 |

**(F) Gross Secondary School Enrollment Rate**

| | | | | | |
|---|---|---|---|---|---|
| Very poor | - male | 14.4 | 3.0 | 4.9 | 3.5 |
| | - female | 5.3 | 2.0 | 4.5 | 1.2 |
| Mid-Poor | - male | 25.0 | 20.8 | 13.3 | 21.1 |
| | - female | 11.0 | 8.4 | 4.9 | 9.4 |
| Non-poor | - male | 51.0 | 53.4 | 50.2 | 47.7 |
| | - female | 26.2 | 33.0 | 30.4 | 27.2 |
| All | | 31.2 | 34.3 | 29.7 | 25.7 |

Secondary school enrollment also declined between 1985 and 1988 (Table 29E and 29F). The decline occurred entirely among poor households, especially among the very poor. Secondary enrollment of boys from very poor households dropped by two-thirds to a mere 3.5 percent, and enrollment for girls from these households dropped by almost 80 percent to 1.2 percent. The remark we made earlier regarding the abysmal prospects for the very poor to escape out of poverty through education obviously can be repeated here.

Lastly, in Table 30 we take a look at household expenditures for education. They have fallen drastically, by 38 percent, between 1985 and 1988. This is a greater decline than total expenditure, indicating that households have cut back proportionately more on education expenses. This trend is most pronounced for the very poor. This reduction in household spending for education stands in contrast with the increased spending of the government on the education sector. However, since on a per capita basis government spending stayed about the same in real terms, there is a net loss of resources going to education.

Table 30 also shows the share of household expenditure devoted to education. This share can be interpreted as households' willingness to pay for education. 18/ It is remarkable that in 1985 very poor households displayed a willingness to pay for education twice as high as that of non-poor households. Unfortunately, this willingness declined sharply over time so that in 1988 it had fallen to below that of the non-poor. This decline, in combination with falling enrollment rates and rising age-grade mismatch among children of very poor households paints an alarming picture, and presents a strong call for targeted education interventions to promote enrollment and to reduce monetary and opportunity cost of primary school attendance. Measures may well have to include selective subsidization of certain education expenses for the very poor, such as the provision of free school meals and

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18/ For that reason, Table 30 shows the average of shares calculated at the household level - since the share has meaning as a household-level variable. In this respect, Table 30 differs from Table 23 which shows the composition of aggregate non-food expenditure. The figures in Table 23 are ratios of sums, e.g. in the case of education, the table shows total education expenses by a given poverty group as a percent of total non-food expenses of that group. It is clear that the ratio of sums need not equal the mean of household ratios.

books. Given the level of government resources devoted to education in Côte d'Ivoire, such re-allocation of resources in a budget-neutral fashion would seem perfectly feasible.

**Table 30: Households Expenditures on Education, by Poverty Status and Region**

| | Real per Capita Expenditures (1985 CFAF/yr) | | | Share in Household Expenditure (%) | |
|---|---|---|---|---|---|
| | 1985 | 1988 | Change | 1985 | 1988 1/ |
| Very Poor | 2,092 | 1,055 | -50% | 5.4 | 1.8 |
| Mid-Poor | 3,655 | 2,725 | -25% | 3.6 | 2.6 |
| Non-Poor | 9,267 | 6,424 | -31% | 2.8 | 2.5 |
| Abidjan | 14,462 | 10,430 | -28% | 3.6 | 3.4 |
| Other Cities | 8,814 | 6,521 | -26% | 3.8 | 3.5 |
| East Forest | 7,257 | 4,017 | -45% | 4.0 | 2.5 |
| West Forest | 6,272 | 3,227 | -49% | 2.6 | 2.3 |
| Savannah | 1,660 | 837 | -50% | 1.1 | 0.7 |
| All | 7,898 | 4,881 | -38% | 3.1 | 2.5 |

1/ Average of shares calculated at the household level.

The general conclusion with respect to education is that during the adjustment phase enrollment rates have continued to rise slowly, but during the recession rates dropped. During the 1985-88 period as a whole, the gap between the very poor and others increased, further bleakening the prospects of the very poor to rely on human capital formation to escape poverty. This trend is not related to the (positive) evolution of government expenditure devoted to education, and highlights the importance of looking directly at what happens at the micro-level in order to assess the basic needs dimensions of welfare.

## 6.2 Health

Table 31 presents information on several health indicators. Part A of the table shows that between 1985 and 1988 the rate with which ill people consulted modern health personnel fell by about 10 percent. However, consultations for the non-poor actually increased by 10 percent, so that the drop in use of modern health facilities was entirely concentrated among the mid-poor and especially the very poor. Consultations among ill women in very poor households dropped by almost 50 percent, so that less than one ill woman in five sought care in a modern health facility in 1988. The regional breakdown further confirms the picture. Progress in access to modern health care occurred only in Abidjan and other cities. In all rural areas, the rate of consultations declined but it did so the most in Savannah.

The picture is more positive when it comes to preventive consultations, mainly pre-natal care and vaccinations (Table 31B). The rate increased substantially between 1985 and 1988, from 22.3 to 32.8 percent. Here, the increase was actually the highest among the mid-poor and the very poor, higher for women than men, and highest in the two poorest regions, West Forest and Savannah. Since preventive health care is usually delivered through special programs set up both by government and by non-governmental organizations,the results clearly indicate that these programs were well targeted. 19/

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19/ One possible reason why preve[illegible] care figures show such a marked improvement for the poor relative to the non-poor is [illegible]-up demand among the poor. A big part of preventive care is quite literally of the "on[illegible]' variety, i.e. vaccinations. If the non-poor routinely have their children vaccinated, [illegible]en their rate of preventive care consultations should be roughly stable over time — which is indeed what the data show. The rate for the poor would be subject to a large rise when programs are launched which in a short period of time vaccinate many children, including those which should have been vaccinated in the course of the past several years. In the longer run, preventive health care rates should stabilize.

## Table 31: Health Indicators

| | | 1985 | 1986 | 1987 | 1988 |
|---|---|---|---|---|---|
| **(A) Percent of ill people who consulted doctor or nurse** | | | | | |
| Very poor | - male | 31.2 | 30.8 | 20.0 | 19.1 |
| | - female | 30.2 | 28.0 | 15.5 | 16.2 |
| Mid-Poor | - male | 36.9 | 30.0 | 37.4 | 32.8 |
| | - female | 36.2 | 30.6 | 34.0 | 31.3 |
| Non-poor | - male | 48.6 | 47.7 | 46.2 | 52.6 |
| | - female | 50.8 | 51.8 | 48.4 | 54.8 |
| Abidjan | | 62.5 | 63.6 | 61.1 | 70.5 |
| Other Cities | | 53.9 | 55.8 | 53.5 | 56.5 |
| East Forest | | 43.8 | 47.1 | 47.4 | 42.7 |
| West Forest | | 39.6 | 39.0 | 26.9 | 34.6 |
| Savannah | | 30.3 | 22.1 | 22.1 | 18.1 |
| Côte d'Ivoire | | 45.8 | 43.9 | 40.6 | 41.3 |
| **(B) Percent of people having preventive consultations** | | | | | |
| Very poor | - male | 14.2 | 21.9 | 19.9 | 40.0 |
| | - female | 15.6 | 27.2 | 26.1 | 47.3 |
| Mid-Poor | - male | 17.1 | 21.9 | 29.7 | 31.4 |
| | - female | 18.1 | 23.6 | 33.3 | 35.9 |
| Non-poor | - male | 23.5 | 29.2 | 29.9 | 26.0 |
| | - female | 25.8 | 30.7 | 37.2 | 32.8 |
| Abidjan | | 33.2 | 22.4 | 32.9 | 27.5 |
| Other Cities | | 27.0 | 42.6 | 39.0 | 37.9 |
| East Forest | | 23.9 | 33.5 | 30.2 | 27.4 |
| West Forest | | 16.5 | 14.7 | 25.4 | 34.1 |
| Savannah | | 9.3 | 18.6 | 30.6 | 36.9 |
| Côte d'Ivoire | | 22.3 | 27.9 | 32.1 | 32.8 |

**(C) Percent of people with access to tap water**

| | | | | |
|---|---|---|---|---|
| Very poor | 1.5 | 4.4 | 3.1 | 2.9 |
| Mid-Poor | 7.9 | 7.7 | 4.0 | 11.4 |
| Non-poor | 28.7 | 29.4 | 31.6 | 31.2 |
| | | | | |
| Abidjan | 47.3 | 48.5 | 57.8 | 57.5 |
| Other Cities | 46.5 | 46.8 | 42.2 | 37.6 |
| East Forest | 8.5 | 7.2 | 4.2 | 10.3 |
| West Forest | 0.0 | 0.0 | 0.0 | 0.7 |
| Savannah | 1.8 | 2.9 | 2.4 | 1.7 |
| | | | | |
| Côte d'Ivoire | 21.8 | 22.7 | 21.9 | 20.9 |

**(D) Average Distance (meters) to water supply (if not tap water)**

| | | | | |
|---|---|---|---|---|
| Very poor | 237 | 318 | 348 | 336 |
| Mid-Poor | 237 | 311 | 264 | 273 |
| Non-poor | 276 | 254 | 242 | 294 |
| | | | | |
| Côte d'Ivoire | 264 | 269 | 258 | 294 |

An important element of maintaining health is access to safe water. The CILSS results indicate that only about one in five persons in Côte d'Ivoire had access to tap water in 1988 — a figure essentially unchanged from 1985 (Table 31C). However, the most striking feature here is not the over-time pattern but the huge gap between the poor and the non-poor. Access to tap water for very poor persons was only one tenth of the rate for non-poor and one fourth of the rate for the mid-poor. 20/ It is also clear that access to tap water in Côte d'Ivoire is strictly an urban feature. In West Forest and Savannah, less than 2 percent of rural residents have access to tap water. Even in urban areas, the availability of safe water became worse between 1985 and 1988, except in Abidjan.

Apart from the health implications from the lack of access to safe water, it is sometimes said that the poor also need to spend more time to fetch water. This seems to be the case in Côte d'Ivoire but the differences with the non-poor are small (Table 31D). The average distance to the nearest water source increased from 264 meters to 294 meters between 1985 and 1988, but this remains a non-excessive distance to cover. The distance did increase more for very poor households than for others, but the differential remains small (in 1985, the average distance for the poor was actually less than for the non-poor). Clearly, the policy priority for the Ivorian Government is not to bring non-tapped sources of water supply closer to households, but to expand coverage of tapped water to rural areas and to stem the slipping coverage in urban areas outside Abidjan.

In Table 32, we report on the availability of two other facilities — toilets and garbage removal — which are important for hygiene. Their health implications may be less direct than in the case of access to safe water, but the lack of toilets and garbage removal does contribute to the spread of disease and to generally unsanitary living conditions. For the country as a whole, the percentage of household that had a flush toilet or a pit latrine and those who benefitted from garbage removal by truck did not change much between 1985 and

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20/ The CILSS reports access to tap water as a household feature — hence no differences between men and women are reported.

1988. Both features are entirely urban in Côte d'Ivoire and significantly more available to non-poor households. They also declined sharply for the very poor, while they were unchanged or improved slightly for other groups — a trend we have observed so far for almost all basic needs components of the level of living.

As we did for education, we also tabulated the proportion of expenditure which households devote to health care (Table 33). As was the case for education, expenditures on health declined between 1985 and 1988 by more than the decline of total expenditure. There are two differences with education though. First, the absolute amounts spent per capita on health by households exceeds government spending per capita (in the case of education government outlays per capita were 2 to 3 times those of households). This means that the cuts in household spending are relatively more important in terms of the total resources devoted to health care than was the case for education. Second, the cut-backs are largest for non-poor households. However, the absolute amounts spent on health care by poor households were so low — the equivalent of less than $2 per year per person for very poor households — that there would appear to be little room for decline.

The general picture for health provisions in Côte d'Ivoire is thus that of a status quo or slight decline in the use of curative health consultations and the use of amenities such as tap water and toilets which contribute to maintaining good health. For the very poor however, the use of these amenities has declined sharply, or where it has not, like the access to tap water, it remains at such pitifully low levels (3%) that any change does not make much difference. The one bright spot is the use of preventive health care, mainly vaccinations, which have succeeded in reaching increasingly the very poor. As was the case for education, outcomes at the micro-level bear little relation to the evolution of public expenditure (see Table 28).

## Table 32: Access to Toilet Facilities and Garbage Disposal, by Poverty Status and Region

| | 1985 | 1986 | 1987 | 1988 |
|---|---|---|---|---|
| **- Percent of Households with flush toilet or pit latrine -** | | | | |
| Very Poor | 37.7 | 34.2 | 30.3 | 25.9 |
| Mid-Poor | 46.8 | 42.4 | 45.5 | 42.9 |
| Non-Poor | 60.5 | 58.7 | 65.7 | 62.9 |
| Côte d'Ivoire | 56.8 | 55.0 | 59.3 | 53.7 |
| **- Percent of Households with Garbage Removal by Truck -** | | | | |
| Very Poor | 7.0 | 13.6 | 9.4 | 5.5 |
| Mid-Poor | 8.8 | 15.0 | 16.6 | 17.0 |
| Non-Poor | 33.6 | 34.3 | 42.5 | 38.1 |
| Côte d'Ivoire | 27.9 | 30.2 | 35.1 | 29.1 |

## Table 33: Household Expenditures on Health, by Poverty Status and Region

| | Real Per Capita Expenditures (1985 CFAF/yr) | | | Share in Household Expenditures 1/ (%) | |
|---|---|---|---|---|---|
| | 1985 | 1988 | Change | 1985 | 1988 |
| Very poor | 598 | 526 | -12% | 1.0 | 0.9 |
| Mid-Poor | 3,318 | 2,998 | -10% | 3.3 | 2.8 |
| Non-poor | 11,332 | 8,091 | -28% | 3.1 | 3.0 |
| Abidjan | 16,956 | 8,985 | -47% | 3.6 | 2.7 |
| Other Cities | 9,036 | 9,793 | +8% | 3.0 | 4.8 |
| East Forest | 6,214 | 4,661 | -25% | 2.6 | 2.2 |
| West Forest | 13,346 | 3,510 | -74% | 5.2 | 2.0 |
| Savannah | 1,871 | 2,913 | +56% | 1.0 | 1.9 |
| All | 9,345 | 5,947 | -36% | 3.0 | 2.7 |

1/ Average of shares calculated at the household level.

## 6.3 Housing

Home ownership in Côte d'Ivoire is characterized by an unusual distribution compared to elsewhere in Africa. Home ownership in Abidjan is much lower than what is recorded in other major African cities, and it is not a status which is associated with high income (Grootaert and Dubois, 1988). In fact, high income households tend to be more frequent renters (Table 34A). The reasons may have to do with the extreme concentration of land and building ownership in urban areas, especially in Abidjan, and the traditional availability of subsidized rental housing to workers in the civil service and in the formal private sector. This tradition, however, came to an end during SAL II when the Government abolished SICOGI and SOGEFIHA, the two agencies that were responsible for the provision of public housing. The housing units were sold (at below market prices) to existing tenants. Subsidies paid out to civil servants in private housing were also curtailed. The CILSS results show that virtually no renters in public housing were poor (less than 1% in 1985). Among the non-poor though, public housing was quite important since in 1985, 33% of all renters in Abidjan and 14% of all renters in other cities lived in public housing (there was no public housing in rural areas). The phasing out of public housing was fairly effective, and in 1988 these figures were reduced to 17% and 4%, respectively. Clearly, the government's withdrawal from the housing market was a measure with no direct implications for the poor.

It appears from Table 34A that the slight decline in home ownership between 1985 and 1988 was equally shared by each of the three welfare groups. However, these figures are dominated by rural areas where home ownership is above 90 percent. A further look at the distribution of home ownership within Abidjan revealed that home ownership rose in middle and high-income districts — this could well be the result of the sale of the public housing units — while it fell sharply in low-income districts. It is not clear whether this is due to people actually losing title to their home as a result of economic hardship or due to the increase of squatting settlements in low income areas (or both). Some studies are currently under way in Côte d'Ivoire which should bring out the causes of this trend.

## Table 34: Housing Indicators

| | 1985 | 1986 | 1987 | 1988 |
|---|---|---|---|---|
| **(A) Percent of People Living in Owned Home** | | | | |
| Very Poor | 92.2 | 89.4 | 90.4 | 84.9 |
| Mid-Poor | 87.5 | 83.2 | 85.6 | 80.6 |
| Non-Poor | 63.1 | 64.4 | 58.4 | 57.7 |
| Abidjan | 28.1 | 25.4 | 23.4 | 25.3 |
| Other Cities | 48.3 | 53.6 | 47.5 | 46.4 |
| East Forest | 88.9 | 90.5 | 86.7 | 82.5 |
| West Forest | 96.6 | 94.7 | 94.7 | 92.5 |
| Savannah | 97.3 | 94.4 | 92.5 | 93.3 |
| Côte d'Ivoire | 70.9 | 70.4 | 68.4 | 68.8 |
| **(B) Percent of People with Access to Electricity** | | | | |
| Very Poor | 14.1 | 6.1 | 8.4 | 10.9 |
| Mid-Poor | 19.4 | 23.7 | 21.0 | 29.2 |
| Non-Poor | 46.9 | 47.7 | 53.6 | 53.3 |
| Abidjan | 74.8 | 73.5 | 88.9 | 91.1 |
| Other Cities | 77.0 | 77.3 | 74.5 | 71.8 |
| East Forest | 15.5 | 16.4 | 19.2 | 23.4 |
| West Forest | 0.1 | 0.0 | 2.2 | 4.4 |
| Savannah | 14.4 | 15.9 | 12.2 | 10.4 |
| Côte d'Ivoire | 38.1 | 39.4 | 41.2 | 39.7 |
| **(C) Average Floor Area Per Person (square meters)** | | | | |
| Very poor | 7.6 | 5.4 | 6.4 | 6.1 |
| Mid-Poor | 7.2 | 6.6 | 7.4 | 7.0 |
| Non-poor | 9.6 | 10.7 | 10.4 | 10.2 |
| All | 8.9 | 9.4 | 9.3 | 8.6 |

As a measure of the quality of housing, Table 34 (B & C) shows the percent of people who have access to electricity and the available floor space in houses per person. For the country as a whole, access to electricity improved slightly until 1987 and then fell back. The trends in individual regions were very different though. Significant improvements occurred in Abidjan and in the two Forest zones, while access declined in Other Cities and Savannah. Obviously, these trends are not related to the general economic trends in these areas, and must reflect the continuation of an independent investment program of Côte d'Ivoire's public utility. Nevertheless, once again, one trend is clear: the biggest deterioration occurred for the very poor. The quality of the housing of the very poor also declined looking at the amount of floor space available to them. For the other groups, there was no significant change.

Lastly, Table 35 looks at the main source of fuel used for cooking. The preferred fuel is of course electricity which as we just saw is significantly more available to the non-poor. The least desirable source is wood, which was used by almost all very poor households (all of them in 1988) and by 90 percent of the mid-poor. As a result of deteriorating welfare, the percent of households which gathered wood (as opposed to buying it) rose between 1985 and 1988 — from 78 to 87%. In 1988, 95 percent of very poor households gathered their own wood, for which they had to travel an average distance of 2.9 km. This distance had actually declined since 1985, raising an environmental concern that closer woods (perhaps previously bypassed because they were still too young or otherwise not ideal for harvesting) are now being cut down.

In summary, housing was the one basic needs provision which was explicitly addressed in the SALs. The Government's withdrawal from the housing market had the effect of eliminating a benefit for the better-off (although the below market-price sale of units created a one-time windfall profit for them) and left the poor largely untouched. Changes in home ownership rates and in the quality of housing were small between 1985 and 1988, but the evidence indicates that whatever unfavorable changes did occur affected almost solely very poor households.

## Table 35: Use of Wood as Fuel, by Poverty Status and Region

| | 1985 | 1986 | 1987 | 1988 |
|---|---|---|---|---|
| | **- Percent of households using wood as kitchen fuel -** | | | |
| Very Poor | 98.2 | 95.3 | 95.8 | 100.0 |
| Mid-Poor | 95.3 | 90.4 | 93.1 | 89.5 |
| Non-Poor | 66.4 | 67.7 | 61.6 | 59.9 |
| Côte d'Ivoire | 73.1 | 72.7 | 70.1 | 72.0 |
| | **- Percent of households gathering wood -** | | | |
| Very Poor | 88.6 | 91.0 | 89.8 | 95.2 |
| Mid-Poor | 86.4 | 87.6 | 85.3 | 87.6 |
| Non-Poor | 74.9 | 77.3 | 77.7 | 84.4 |
| Côte d'Ivoire | 78.4 | 80.2 | 80.8 | 87.1 |
| | **- Average Distance (km) to source of wood -** | | | |
| Very Poor | 4.2 | 4.4 | 2.7 | 2.9 |
| Mid-Poor | 3.9 | 3.6 | 3.2 | 3.0 |
| Non-Poor | 3.5 | 3.4 | 3.1 | 2.9 |
| Côte d'Ivoire | 3.7 | 3.5 | 3.1 | 3.0 |

## 7. Summary and Conclusions

This paper has set out to demonstrate what can happen to the welfare of households and individuals, and to poverty, in a low to middle income country, under conditions of structural change and economic recession. The literature on the impact of adjustment has indicated the difficulty of predicting social and poverty outcomes on purely theoretical and *a priori* grounds. In-depth empirical research thus offers the best promise for enhancing our understanding of the process by which macro-economic change is transmitted to the micro level.

In this paper we presented selected results from a case study for Côte d'Ivoire, which was one of the first African countries to launch a structural adjustment program with support from the World Bank and the International Monetary Fund. The program was sustained for six years (1981-86), but then abandoned in 1987-88 when a severe recession hit the country. In 1989, a new economic recovery program was initiated. Côte d'Ivoire presents a unique case study — certainly in Africa — due to the availability of four consecutive years of comprehensive data on levels of living over the period 1985-88 (the Côte d'Ivoire Living Standards Survey — CILSS). The first two years of this data thus capture the situation at the end of a long sustained adjustment effort when the economy was growing moderately, while the last two years represent a period of pronounced macro-economic decline, with increasing internal and external imbalances — in effect, a period of destabilization.

We have utilized the four years of CILSS data to attempt to show the effects of the two macro-economic regimes on the welfare of households and individuals, the incidence and depth of poverty, and the fulfillment of basic needs. To do so, we have purposely avoided the use of a formal macro-economic model, but relied instead on an eclectic approach centered around the construction of a policy relevant poverty profile, and the use of a decomposable poverty index.

Our research builds upon earlier work which used the CILSS data for poverty-oriented analysis, but transcends it in several ways. First, to our knowledge, this research is the first to use the full sequence of four years of CILSS data. Especially the fourth year has proven essential to evaluate correctly the impact of macro-economic events. Second, a detailed scrutiny of the reliability of the CILSS data has led us to discover two heretofore unknown sources of error in the data due to sampling bias. We have developed and applied suitable corrective sampling weights. The results from applying these weights have called into question the robustness of findings reported in earlier work. Third, we have developed a detailed regional cost-of-living index based on price data collected under the International Comparisons Project. This index has significantly more comprehensive coverage than earlier available indices, and its use makes a significant difference for the estimation of poverty.

Welfare and Poverty in Côte d'Ivoire, 1985-88

We found that the level of living of the Ivorian people declined over the entire 1985-88 period. Initially, the decline was gradual, but it became rapid and massive in 1988, when the economic recession hit in full force and when adjustment was replaced with destabilization: in one year welfare levels measured by household expenditure per capita fell by 20%. Not everyone was affected to the same degree — in fact, major distributional changes occurred over the period. During the final years of the adjustment phase, 1985-86, the incidence of poverty remained steady and the incidence of extreme poverty even fell. The depth of poverty also diminished. In 1987, on the other hand, poverty and extreme poverty both became more widespread — a trend which accelerated dramatically in 1988. In these two years, the incidence of poverty rose by over 50%, and the incidence of extreme poverty more than doubled. Likewise, the depth of poverty increased.

There were important regional differences, as well as differences across the socio-economic groups in Ivorian society. The most rapid increase in poverty occurred in urban areas, especially among public sector employees. However, given the initial low degree of urban poverty in 1985, the urban poor still represented only 25% of all poor in 1988. The

new urban poor notwithstanding, poverty in Côte d'Ivoire was thus still a predominantly rural phenomenon in 1988. The Savannah remained Côte d'Ivoire's poorest region over the period. Within the other rural areas, a major reversal took place: West Forest, which in 1985 was the most prosperous region after the Abidjan area, became the second poorest region in 1988. The decline in West Forest's fortunes was related to sharply falling farm incomes of export crop farmers, which occurred in spite of the maintenance of nominal official producer prices. Real producer prices fell of course, and the extent of government support to agricultural production proved insufficient to maintain output.

Extreme poverty did not increase in urban areas, but rose sharply in West Forest and Savannah. The two zones contained in 1988 two thirds of all very poor persons in Côte d'Ivoire. In Savannah, two of every three people lived in poverty, and half of them lived in extreme poverty.

Who Gained and Lost?

Judging by what happened in the final two years of the adjustment phase, it would appear that the poor benefitted during this period. The overall incidence of poverty remained stable in 1985-86, but the depth of poverty was reduced, and the incidence of extreme poverty also fell. The improvement occurred for the most part in rural areas and benefitted primarily farmers. This suggests that one of the main policies of the adjustment program, viz. the shift of the urban/rural terms of trade in favor of rural areas, achieved the desired effect. Although the relevant adjustment measures were mostly concerned with the maintenance of export crop prices, benefits occurred for both export crop and food crop farmers. (The government did support the price and production of several food crops.)

In contrast, the adjustment program reduced parastatal wages and froze those of government workers. This is clearly reflected in the CILSS results which show an increase in incidence and depth of urban poverty, especially in Abidjan. Although poverty incidence remained low among public sector employees, it did rise by 14% between 1985 and 1986.

These are clearly the "new poor" as a result of adjustment. However, poverty also rose in the urban private sector — formal as well as informal — although this was probably more the result of the unfavorable macro-economic situation rather than the adjustment program. In particular, the real effective exchange rate rose by 20% and this clearly undermined the competitive position of the industrial sector in the country.

There is little doubt that in this phase of structural change the middle and upper income classes in Ivorian society were affected most. Average expenditure levels of the poor and very poor rose, while those of the non-poor fell significantly. In urban areas, the decline touched the middle class as well — those with welfare levels just above the poverty line — as witnessed by the rise in the number of the urban poor. Our decomposition analysis of the change has shown that it resulted in an equalization of the distribution of welfare, but more so in cities other than Abidjan.

The rapid rise of poverty in 1987 and 1988 stands in sharp contrast with the neutral to improving situation of the first two years. In 1988, the incidence of urban poverty almost doubled relative to the previous year and the depth of poverty also deteriorated, particularly in cities other than Abidjan. In rural areas, poverty also rose, but much less. The biggest rise occurred in West Forest among export crop farmers, due to rapidly falling yields and sales from export crops, especially coffee. This experience suggests that maintenance of producer prices is not always sufficient to generate a positive supply response but that the entire system of agricultural support needs to be maintained and improved as well. While strictly speaking, our methodology cannot prove causality between the accelerating macro-economic deterioration in 1987-88 and the rise in poverty (in the absence of a formal macro-economic model), the evidence during that period, and particularly the difference with the two previous years, points in our view rather overwhelmingly to a link.

The Basic Needs Dimension

Government spending was reduced in real terms during the adjustment phase. However, the Government of Côte d'Ivoire protected spending in the social sectors (health and education) and their share in current government expenditure even rose slightly. Our results suggest though that at least in the short and medium run there is little relation between the level of government expenditure devoted to health and education and achievement or use-of-service indicators in those sectors.

On a country-wide basis, most of the basic needs indicators we considered in this paper (literacy, school enrollment, use of health care facilities, access to safe water, housing amenities) changed little over the period 1985-88. This is an encouraging finding, in that the deterioration in expenditure-based welfare and the concomitant rapid rise in poverty over the period was not matched by a deterioration of the fulfillment of basic needs. Even those indicators which did decline did not do so nearly to the same degree as the monetary indicators. This underscores the importance of looking separately at the different dimensions of the level of living since they clearly need not all move in the same direction.

However, the country-wide results mask very wide differences between the poor and non-poor. We found that basic needs indicators declined systematically for the poorest households, almost regardless of the average trend of a given indicator: net primary school enrollment for girls in very poor households fell from 22.4% to 16.7%; the number of children one year or more behind their grade-for-age doubled to 64% for boys and 53% for girls; the rate of medical consultations of ill women fell from 30% to 16%; the rate of home ownership declined from 92% to 85%; access to electricity fell from 14% to 11%. In addition, the amount of expenditures which very poor households devote to education and health care fell by 50% and 12% respectively. The sole exception to this pattern of deteriorating basic needs fulfillment occurred in health care: the rate of preventive consultations rose for very poor households and more so than the country-wide average. (Access to tap water also improved, but in 1988 it was still at a dismal 3%).

The one social sector specifically addressed in the adjustment program was housing: the government bailed out of the provision of housing. This had no direct effect on the poor since they were not tenants in public housing to begin with.

While the results make it clear that basic needs indicators deteriorated much less than monetary welfare indicators for the country at large, for very poor households the trend was much worse and these households do appear to have suffered serious declines in their basic needs satisfaction. Since the declines occurred both in the adjustment and destabilization phases, the cause must likely be sought in the general economic decline of the 1980s in Côte d'Ivoire and the concomitant deterioration in supply and delivery of public services. On the demand side, very poor households faced tighter budget constraints which reduced household resources available for health and education.

What Happened after 1988?

There are no household survey data available to answer this question directly, but the macro-micro relationship observed between 1985 and 1988 gives a strong clue about the current situation in Côte d'Ivoire. Between 1985 and 1988 GDP per capita had fallen by 13 percent. In 1989-90, it fell by another 17 percent, and private consumption was reduced by a further 10 percent. It is therefore likely that poverty has continued to increase after 1988. The increase could be quite substantial if the observed relation between household welfare and macro-economic decline has continued.

It is more difficult to predict regional and socio-economic trends. In 1989 the government took the drastic step of reducing official producer prices for cocoa and coffee by 50 percent — this had become necessary for fiscal reasons. This will have shifted in a major way the domestic terms of trade against the rural areas, possibly reversing the trend of a faster rise in urban poverty (although it may not have slowed the absolute increase much). Fortunately, the real effective exchange rate did not appreciate further in 1989-90 even though the international terms of trade continued to decline. Coffee and cocoa

production in fact increased significantly and this will have buffered the impact of the reduction in producer prices on farmers' income. On balance, the likely impact will have been a further increase in poverty among export crop farmers, but less so than might have been expected from the drop in official prices. There is no evidence that food prices also declined, so the relative situation of food crop farmers and urban consumers may not have changed much.

On the basic needs side, there is little evidence to suggest that the 1985-88 trends would not have continued — that is, fairly small changes on average, but steady deterioration for the very poor. One (small) bright light is that in 1989-90 the government increased the share of education expenditure going to primary schooling. As we already pointed out though, the key factor in reaching the poor is more efficient service delivery and more effective targeting.

Policy Orientations for Côte d'Ivoire

The case study results contain several useful findings to increase the poverty-orientation of a future economic recovery program in Côte d'Ivoire. They also help to identify priority target groups and areas.

First and foremost, poverty alleviation efforts have become much more needed in view of the sharp rise in poverty. Since poverty rose much faster during the destabilization phase, managed structural change should be the underlying framework for poverty alleviation.

Second, over the period 1985-88, inequality actually decreased and the entire increase in poverty was due to the negative growth in household expenditure. The priority in poverty alleviation is thus not so much to change distribution but to generate growth. (However, an important caveat is needed, viz. the negative trickle-down observed during economic decline

does not necessarily imply that there will be a positive trickle-down during economic growth).

Third, poverty has become more widespread across the regional and socio-economic spectrum in Côte d'Ivoire, and thus targeting will become more difficult but more important in view of government budget constraints. Especially, urban poverty is a fast growing problem in Côte d'Ivoire and will require increasing attention. The key groups are public sector workers, where poverty incidence has risen most rapidly, and informal sector employees, who are a numerically small but very vulnerable group with the highest incidence of poverty and extreme poverty.

Fourth, among rural areas, the traditionally poor Savannah zone must continue to be a prime target area since almost one third of all poor and one half of all very poor live there. The majority of them are food crop farmers.

Fifth, the dramatic increase of poverty in West Forest has made this the next priority zone. The key target group here is export crop farmers.

Sixth, since 80% of all revenues from cocoa and coffee went to non-poor farmers, the price support policy for these crops had only a limited benefit for the poor. Now that the policy has been abandoned, the promotion of these crops must occur in the context of an overall agricultural support package aimed especially at poor farmers. This is of vital importance in any poverty-alleviation strategy in the Forest regions.

Seventh, there are no explicit "poor foods" in the consumption basket of Ivorian households, except perhaps maize and millet where the poor account for 40% of total consumption. But even for these items, generalized price subsidies will have substantial leakages to the non-poor. The government's support for the price of rice benefitted the poor as producers (both sales and home-produced consumption rose rapidly) but the increased supply induced important shifts in consumption patterns away from other foods, and

increased the total cost of the subsidy. In general, the suitability of continuing commodity-specific subsidies in Côte d'Ivoire must be questioned.

Eighth, the delivery of public services (education, health, tap water) needs to be targeted better to the very poor who are rapidly falling behind in the fulfillment of basic needs.

Ninth, in spite of the large resources which the government continues to devote to education, there are major signs of trouble in the sector under the form of falling enrollment rates, increasing age-grade mismatches due to drop-out and repetition, and sharply falling household expenditures devoted to education. The issue definitely is not the overall level of resources, but the intra-sectoral allocation and the efficiency of service delivery. There is a high need to target the very poor and provide selective subsidies to reduce the cost of school attendance.

Tenth, in the area of health, increased delivery of curative health care and access to tap water for the very poor are top priorities. Savannah and West Forest lag significantly behind the rest of the country.

Beyond the Case Study

While caution is always needed to generalize beyond a case study, we think that this research has some lessons applicable to other countries as well.

One of the most striking findings of this study is the speed with which the recession/destabilization in Côte d'Ivoire in 1987-88 "trickled down" to households, and the magnitude of the effect. There is no reason to assume that such effect could not occur in other countries as well. The explanation probably includes the standard argument that reductions in aggregate demand "bite" much faster than supply incentives and price re-alignments. The contrast with the adjustment years provides dramatic evidence of the costs

in terms of increased poverty that can stem from even one or two years of unchecked economic decline and destabilization. Unfortunately, there is no guarantee that the trickle-down effect will work in the positive direction as well, i.e. when economic growth resumes. In fact, the reduction in the inequality of the distribution of welfare observed during the decline phase, might suggest the opposite. The phenomenon at work could have been a "Kuznets-curve" in reverse: when the economy contracts, the distribution of income gets better before it gets worse. And while the priority for the Government of Côte d'Ivoire is clearly to generate economic growth, once it happens the need for explicit redistribution policies may well re-emerge. At any rate, the important lesson is that it is much more feasible to protect the poor with a managed adjustment program than under conditions of destabilization.

A second general lesson pertains to the fulfillment of basic needs. On the positive side, the Côte d'Ivoire experience highlights the possibility to protect, on the average, the fulfillment of basic needs even in conditions of rapid economic decline. On the negative side, the CILSS data underline the danger that the very poor may suffer serious setbacks in basic needs fulfillment, even when average conditions remain the same or even improve. Indeed, during 1985-88, for Côte d'Ivoire as a whole, the fulfillment of basic needs did not suffer precariously, but the very poor bore almost the entire burden of whatever declines did occur. It would appear that the reasons behind this phenomenon may occur in other countries too: the very poor are often marginal users of health and educational services and any deterioration in supply or demand causes them to relinquish using the service. In the case of a supply reduction, the opportunity cost may become too high, and in the case of falling income the very poor may no longer be able to afford the monetary outlays. Clearly, the lesson for other countries is that it is not sufficient to monitor basic needs trends at the national level, but that disaggregation by region, socio-economic group and welfare level are essential. By the same token, separate targeting and policy design for the very poor may well be essential.

Analytic Methodology

Several lessons can be learned from the methodology we used. First, our results demonstrate the importance of using two poverty lines: cross-sectional and over-time patterns of overall poverty did not parallel those of extreme poverty. This was the case for the expenditure-based P-alpha measures, but even more so for the basic needs indicators. One of our key findings, viz. that the very poor bore the brunt of deterioration in basic needs fulfillment, would have been entirely missed if only the higher poverty line had been used.

Second, it is important to check how robust the results are to changes in poverty lines and poverty measures. Sensitivity analysis showed that all major patterns and trends remained unaffected by small changes (10%) in the two poverty lines. Dominance analysis permitted to broaden that conclusion to all reasonable poverty lines and poverty measures, but did indicate that caution was needed for one or two of the more region-specific findings since they would not hold over the entire range of feasible poverty lines (e.g. the increase in extreme poverty in cities other than Abidjan.)

Third, the decomposition analysis of the over-time changes in poverty into growth and redistribution components was particularly useful to understand the dynamics of poverty and to identify vulnerable groups. It should be a standard ingredient of poverty analysis.

Lastly, and most generally, our use of a multi-dimensional poverty profile in combination with a decomposable poverty index proved to be an effective tool to link macro-economic change to welfare of households and individuals. The decomposition over socio-economic group was especially useful, given that those groups were defined according to source-of-income and sectoral criteria — which could be linked directly to policy measures (e.g. relating to public sector, export crops, etc.). We do not claim to have proved causality formally, as perhaps we could have done with a full-fledged economy-wide model. However, the flexibility and ease of use of our analytic tool provides, in our view, an ample trade-off for the loss of formal causality. It seems clear that the possibility of widely

applying this type of analysis in most African countries is far greater than that of economy-wide models.

Data Collection

The data source used for the analyses in this paper was unusually rich — too rich, in fact. One rather overwhelming lesson which the research team learned is the complexity, cost, and time-consuming nature of analyzing four years of integrated household survey data sets with a multi-level hierarchical structure (households, individuals, enterprises, expenditure categories, crops, loans, recipients of transfers, etc.), a highly non-linear questionnaire design with complex skip patterns, over a thousand variables in each year, and a rotating panel design. One cannot do this kind of empirical research and not raise the question whether this type of living standards survey is really the most recommendable approach to data collection for welfare and poverty analysis.

Two lessons are relevant. First, our results indicate the crucial importance of annual monitoring of poverty. Year-to-year changes in Côte d'Ivoire were drastic, and there is no reason to think that such changes could not occur in other countries as well. Second, such monitoring should not be done with complex integrated surveys. Even excluding considerations of cost to the collecting country, the reason is that they simply take too long to analyze. Almost by definition, monitoring is an activity which should produce findings quickly.

What then is the key information needed for poverty monitoring? Our research results suggest that both household expenditure and basic needs information are needed, since neither is able to provide by itself a full picture of welfare. In contrast, income data are much less useful. As we have argued, household expenditure is a preferred welfare indicator conceptually and it is easier to collect. The analysis of the full current account of households, including savings is, in our view, not the top priority for welfare and poverty analysis in a poor country. However, what is important to link macro-economic change to

welfare is the composition of income and changes in it. This can be established through a series of qualitative questions which are much simpler than the literally hundreds of questions needed to build up the level of income. We recognize the potential importance of an integrated living standards survey to provide a base-line data set and to permit in-depth analysis of household behavior and response. For those reasons, such a survey might be undertaken every five years or so (at least if the country has the necessary analytic capacity). Apart from that, the monitoring of poverty should occur annually, or even more frequently if the country undergoes rapid economic change. This can be achieved by a simpler survey focusing only on household expenditure and selected basic needs variables of the sort used in the analysis in this paper. This approach is likely to yield results much faster and thus to be of more interest and use to policy makers. If this then leads to better policy, it might actually help the poor.

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